



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

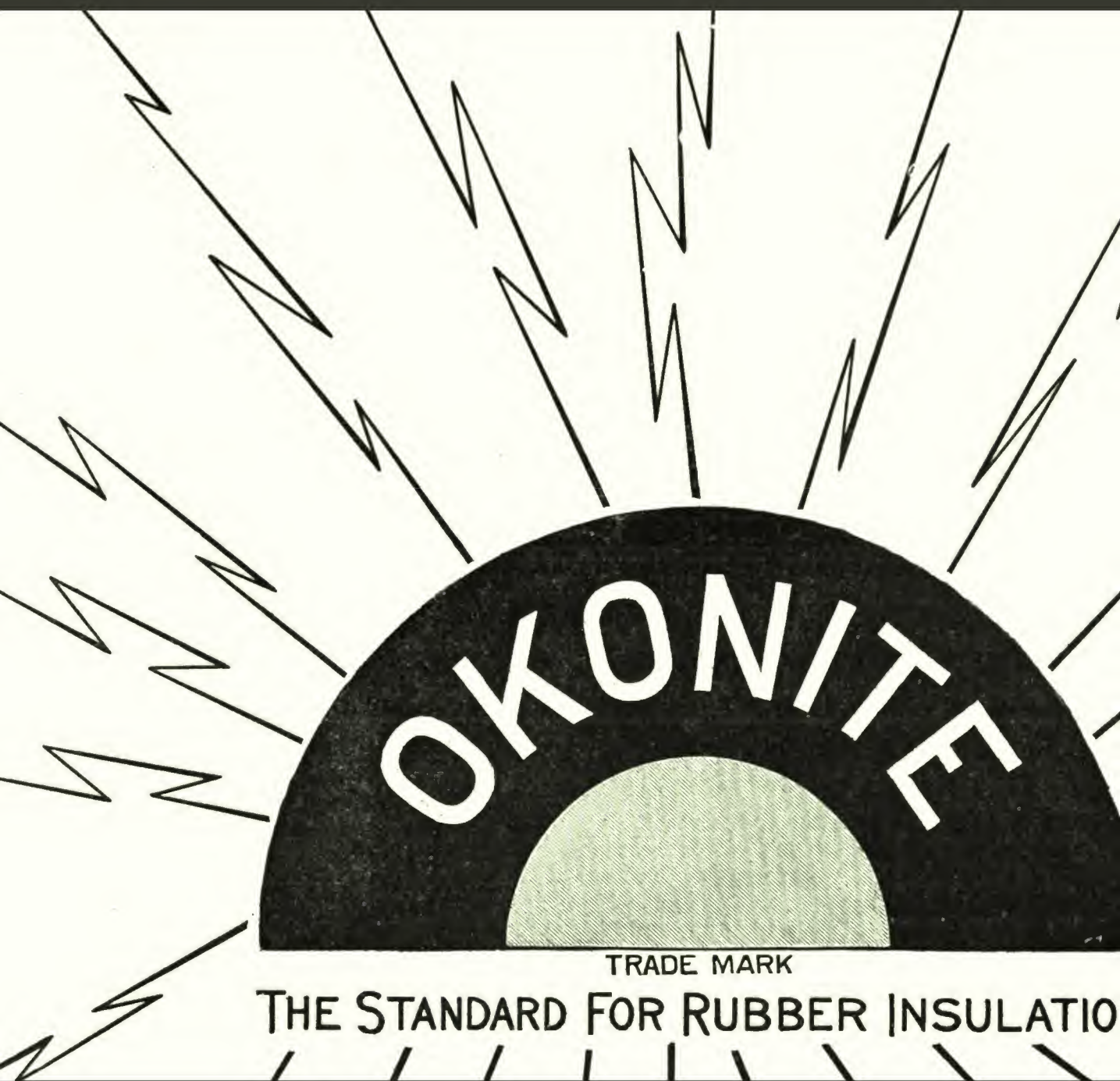
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



*Wire & Radio
Communications*

HARVARD UNIVERSITY

GRADUATE SCHOOL
OF BUSINESS
ADMINISTRATION

BAKER LIBRARY



Wire and radio communications

INDEX

TO

Telegraph Age

VOLUME XIX

January 1 to December 16, 1902

JOHN B. TALTAVALL, Publisher

253 Broadway, New York

YA.4
W798

1902 7, 1301

V.19

INDEX TO VOLUME XIX
96396

TELEGRAPH AGE

January 1 to December 16, 1902

A

Action Against the Pennsylvania Railroad	455
Advancement gained only by hard work	394
Advice of Mr. Carnegie	54
Age Limit, The (For Pensions) ..	120
Age Limit, The (Of Employment) ..	226
Alaska Telegraph Line, Benefits by ..	56
Alaska, Telegraph in	250, 288, 364
Albany, New Office Western Union at	220
American District Telegraph Company	504, 522
American District Telegraph Company, Election	50
American District Telegraph Company, New Offices of	180
American District Telegraph Company, Reorganization	220
American District Telegraph and Messenger Company of Jersey City, Incorporation of ..	157
American District Telegraph Company of Philadelphia (Election of Officers)	240
American Telephone and Telegraph Company Increases its Capital Stock	256½
American Institute of Electrical Engineers Endorses the Metric System	139
Amusing Tilts Indulged in by Telegraph Operators—P. H. Fall	158
An Early Defender of Prof. Morse	257
Annual Dinner of the Morse Club ..	241
Annual Election.—Philadelphia, Reading and Pottsville Telegraph Company	433
Annual Meetings	286
Annual Meeting, Commercial Cable Company	115
Annual Meeting, Great North Western Telegraph Company ..	437
Annual Meeting of the Montreal Telegraph Company	50
Annual Meeting of the Publishers' Press	228
Annual Meeting of the Telegraphers' Mutual Benefit Association	507
Annual Meeting Western Union Telegraph Company	440
Annual Report, Gen. Greely	485
Annual Report of the British Telegraphers shows an Enormous Deficit	394
Another News Organization	412
An Unprecedented Sale (Pocket Diagrams)	316
Arabia, Telegraphy in	55
Arab Widow, An	210

Army Code Saves Money, Revised	521
Associated Press Annual Meeting	416
Associated Press History—Carroll E. Smith	138
Association of Railroad Telegraph Superintendents—Change of Meeting Place	115
Atchison, R. K.—"Daddy of Telegraphers"	209
Atlanta Telegraph Tournament	50, 70, 102
Atlanta Telegraph Tournament Report of, ...	122
Atlantic Cable, First—F. W. Jones ..	395
Atlantic Cable Second and Third—F. W. Jones	413, 432

B

Back Reading, What is	434
Barclay, J. C.—Defense of the Morse System	295
"Beauties" of Government Telegraphy	182
Beehive Cable Box	342
Belvidere Brooks, A Parting Gift to	186
Benefits by Alaska Telegraph Line ..	56
Biographical Sketches:	
Adams, Chas. C.	164
Altberger, John P.	231
Ames, Charles F.	250
Anderson, O. T.	241
Barclay, J. C.	147
Black, W. C.	30
Bliss, Charles C.	414
Bristol, Charles H.	147
Brooks, Belvidere	186
Brown, Alfred S.	146
Bruckner, Eugene E.	139
Burton, Walter C.	484
Butler, W. H.	283
Cook, Theodore P.	146
Creamer, J. M.	298
Cummings, T. P.	481
Edgecomb, Arthur L.	170
Edwards, E. D.	233
Erwin, Charles H.	211
Fashbaugh, W. N.	262
Finn, William	326
Foster, Francis P.	501
Frankel, Geo. J.	148
Garland, Chas. H.	13
Gaunt, Chas. H.	256
Gifford, Sidney B.	235
Goulding, Thos. W.	269
Grant, John James	533
Greetsinger, Jacob L.	267
Griffith, Edward P.	320
Hamblin, M. W.	234
Hasson, Edward F.	500
Hearn, William	148
Hilliard, Jack Irwin	138
Horton, Charles B.	188

Howard, Emmet	524
Humstone, W. C.	210
Jacoby, J. H.	276½
Jaynes, Frank	268
Jenkins, John E.	300
Kauffmann, Samuel Hay	58
Kelvin, Lord	214
Kimmey, Edson	88
Kinney, Dr. John C.	379
Lamb, Frank H.	268
Lay, James Garfield	477
Le Rougetel, Daniel	234
McCammon, T. A.	298
McClintic, Fred M.	138
McKisick, Lewis	188
Maxwell, Lewis J.	459
Merrihew, James	362
Moffitt, Frank V.	255
Mulford, E. M., Jr.	215
Murphy, Charles H.	235
Nelson, John C.	212
Page, Charles E.	349
Prosser, John D.	335
Roberson, Oliver R.	478
Roome, A. E.	483
Saylor, E. B.	398
Sawyer, Wm. A.	297
Schultz, Gustav	314
Slater, W. J.	335
Smith, J. C.	228
Stuart, Jas. B.	270
Taff, Henry F.	459
Terhune, John R.	481
Tierney, P. J.	330
Tinker, Charles A.	187
Van Devender, H.	504
Van Orden, W. A.	320
Ward, Henry H.	313
Welch, J. J.	440
Welsh, Edward F.	336
White, C. W.	196

Book Notices:

A. B. C. Cable Code Book (5th Edition)	137
Instructions for Foremen and Division Linemen of the Western Union Telegraph Company (C. H. Bristol) ..	392
Love Story Masterpieces (Ralph A. Lyon)	392
Phillips Code, A new Edition of	211
Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students (Willis H. Jones) ..	252
Poems by Jerry Newton	253
Pussy Meow (Mrs. S. L. Patterson)	77
Roy and Rosyrocks (Marv Agnes Byrne)	321
Self-Help Mechanical Drawings (N. Hawkins)	522
Sketches Old and New, W. P. Phillips	392

20E 9-6-53

Submarine Cables, Laying, Repairing, Operating, Testing	
Capt. Edgar Russell	492
Tales of the Telegraph (By a Canadian Journalist)	430
The Little Women on the Spout, (Mary Agnes Byrne)	321
Wireless Telegraphy (Richard Kerr)	153
Wireless Telegraphy (Tunzelmann)	153
Wireless Telegraphy, A History of (J. J. Fahie)	392
Bogus Message Case	504
Boston, Self-Help Made Him Mayor of (P. A. Collins)	39
Bradbury, C., North Borneo Telegraphs	498
Brazil's Telegraphs	71
Bridging Over the Periods of Reversals—D. B. Grandy	311
Britain's Telegraph Business	469
British and American Patent Law	169
British Post Office, Case for Enquiry	5
British System of Timing Messages	513
British Telegraphs Shows an Enormous Deficit, Annual Report of the	394
Brooklyn District Telegraph (Annual Election of Officers)	92
Brooks, T. A., Presentation to	230
Buckingham Long-Distance Page-Printing Telegraph	353
Buenos Ayres and Chili Telegraphic Convention	520
Buffalo, A New Main Postal Office at	206
Bugbee, E. L.—A Twentieth Century Suggestion	333
Built the Wires Across Wisconsin	327
Bunnell Consolidation (Important Business Change)	426
Business Notices:	
Anderson, O. T.	176
Brannon, B. L.	178
Burpee, W. Atlee, & Co.	48
Commonwealth Oil Co.	245
Continental Tobacco Co.	450
Delaware, Lackawanna and Western Railroad	220, 223, 245, 266, 286, 308, 330, 376, 450
Delphi Gold Mining Co.	134
Dunlap, K. F., Co.	516
Dunn Electrical Company	223
Electric Storage Battery Company	266
Eureka Electric Company	245
Fairbanks, N. K. Co.	408
Florant & Hall	245
Foote, Pierson & Co.	3, 25, 183, 376, 408
Hammond Typewriter Co.	376
International Cable Directory Co.	267
Kellogg Switchboard and Supply Company	450
King, E. L. & Co.	48
Mahoney, D. A.	25, 376
New Jersey Central Railroad	428
Ostrander, W. R. & Co.	113
Reidy, J. J. & Co.	223
Remington Typewriter Co.	266
Russell, E. S.	450, 516
Smith & Hemenway	137
Smith Premier Typewriter Co.	267
Sprague Electric Co.	91, 178

Standard Telephone and Electric Co.	308
Standard Underground Cable Co.	113, 516
Stromberg-Carlson Telephone Manufacturing Co.	245

C

Cable Laying in the Pacific	116
Cable-Laying Plow	250
Cable Interruptions with Martinique	202
Cable Plans, New (Dutch Government)	153
Cable Rules in War Times	437
Cable Steamer, New (Colonia)	116
Cable, The Transpacific	103
Cables, Fouling the Atlantic (Commercial Cable Co.)	101
Cable in War, Submarine	257
Cables, Mexican	6
The Cable:	57, 157, 210, 223, 263, 271, 306, 309, 332, 363, 398, 420, 437, 462, 474, 495, 527
Bain, Robert Appointed	462
British Pacific Cable, Chas. J. Glidden sent first Message	474
British Pacific Cable Completed from Australia to Fiji	197
British Pacific Cable, First Message between Fanning Island and Bamfield Creek	462
British Pacific Cable, Last Section laid	474
British Pacific Cable Opened for Business	527
British Pacific Cable, Test by Arthur Dearlove	463
British Pacific Cable, Test of Bamfield Creek and Fanning Island Section	474
Caribbean Sea Submarine Cable Inspection	528
Cable Steamer Colonia Conveys last Section British Pacific Cable	306
Cable Steamer Silvertown Conveys first Section Commercial Pacific Cable	30, 420
Cable (The) and Martinique and St. Vincent Volcanic Eruptions	223
Commercial Cable and Postal Officials go to San Francisco	527
Commercial Cable and Postal Officials, Reception to in San Francisco	527
Commercial Cable Company's Annual Meeting	115
Commercial Cable Co., London, Fourth of July Outing	317
Commercial Cable Dinner	33
Commercial Pacific Cable and the Government	343
Commercial Pacific Cable Co. Increases its Capital	215
Cuthbert, David, Goes to Fanning Island	263, 474
Dicketts, J. E. Appointed	437
French Cable Steamer and Mont Pelee Eruption	271
French Telegraph Cable Co., Cutting of	271
Gaines, J. D. Appointed	462
Gaines, J. D. Selects his Staff	527
German Atlantic Cable, first Section	271
German Atlantic Cable, Report of	271

German Atlantic Cable, Soundings for	223
German-Dutch Cable Co.	157, 271
German System, The	398
Harrington, H. F. Appointed	527
Lee, C.	437
Prevent Cutting of	332

Canada, To Prevent Strikes in	256½
Carnegie, Advice of Mr.	54
Carnegie, Andrew	48, 51
Carnegie, Glad it's a "Mac"	291
Carnegie Medal, The	250
Carnegie Proposition, The (J. P. Williams)	3
Chicago and Northwestern Telegraph Co. Election of Officers	240
Chicago, New Postal Main Office in	184
Chicago Telegraphers Reinstated	274
Chinese Telegraph Operator, Denver's	73
College Girl's Telegram	153
Columbus, New Western Union Office at	183
Compulsory Arbitration	310
Conductivity Measurements—W. J. Mundell	27, 51
Conductivity Measurements—R. C. Lord	51
Conference Postponed, Telegraph (London)	37
Congressman Jackson's Ideas	32
Consumption (To Prevent its Spread Among Operators) Chas. H. Garland	94
Convention of the International Association of Municipal Electricians	445
Cook Theo. P., A Presentation to	212
Corliss Pacific Cable Bill Dead	264
Coronation Telegraph Work	316
Correspondence Schools, International	51
Crehore-Squire Automatic Telegraph System	206
Creosoting of Poles, The	256½
Crosses upon Telegraph Wires—R. C. Lord	51
Cuban Telegraph Co., Incorporated	22
Cuba's Telegraph Lines	241
Cuprum, H. D., Neutralizing Capacity by Inductance	181

D

Daddy of Telegraphers—R. K. Atchison	209
Dallas, The Telegraphic Centre of Texas—Will C. Long	208
Davidson, A—Submarine Cables as Accessories to Land Telegraph Lines	352
Defense of the Morse System, The—J. C. Barclay	295
Delany (Patrick B.) Automatic Telegraph System Installed at Harrisburg and Pittsburg	137
Delany (Patrick B.)—Hand vs. Machine Telegraphy	389
Delany (Patrick B.)—Improvements in Perforators	255
Delivery of Telegrams	58
Denver Telegraph Operator, Story of Confederate Gen. Lee and a	191
Denver's Chinese Telegraph Operator	73
Destruction of Wires by Storm—F. W. Jones	159

- Discharging a Telegrapher, For. District Telegraph Co., Brooklyn District Telegraph Co., New American 504, 522
Disturbances to Telegraph Lines by Three-Phase Railway—Cesare Pio 498
Dominion Government Will Consider Measures Which Allow Control of Telephone and Telegraph 118
Dreams, John A.—Needless Delay 412
Dreams, John A.—Smiles 483
Dreams, John A.—Squiberinas 342
Dwight, H. P., Fifty Years Ago 117
Dutch Government New Cable Plans 153
- E**
- Early Help to Marconi 77
Eckert, Gen. T. T. Reminiscence of 142
Eckert, Gen. T. T. Retires 131
- Editorials:
Business Methods 53
Civil Service Rules Should Govern 501
Co-operative Organization Badly Needed 31
Electric Girdling of the Earth, The 480
Governing Preferment 435
Human Side of a Corporation, The 479
Importance of Clean Offices, The 393
Improvement 293
"In Care" of Some Hotel, The 163
Indifferentism, The Folly of 363
It Pays to Understand the Telegraph Business 457
Mackay, John W. 315
New President of the Western Union, The 141
No Higher Telegraph Rates Possible 523
Operators Scarce 207
Organization 293, 479
Overwork 479
Pension Fund Proposition, The 9
Postal Telegraphy, A Word Regarding 119
Power that comes from Knowledge 315
Promotions in the Telegraph Service 415
Refutation Refutes Itself 229
Successful Man, The 75
Success in Life 337
Success Obtained by Obedience to Natural Law 97
Telegraphers' Library Association, A 185
Telegraphic Consolidation Once More 393
Telegraph Prodigies 523
T. S. F. T. A. O. T. C. O. T. O. A. E. T. W. U. T. C. Redivivus 338
Western Union Telegraph Situation 251, 273
What Others Say about The Pocket Edition of Diagrams 273
- Election of Directors, New York Telephone Co. 240
- Election of Officers, American District Telegraph Co. of Philadelphia 240
Election of Officers, Chicago and Northwestern Telegraph Co. 240
Election of Officers, Pacific and Atlantic Telegraph Co. 240
Electricity and Nerve Force 153
Electric Waves, Tells of 95
Employer and Employee, In Behalf of 314
England Sends Telegrams, How 256½
English Telegraph Breakdown 4
English Trade Union Congress (Postal and Telegraph Grievances) 433
Example of Wireless Telegraphy's Efficiency, An 454
Excuse Seemed Insufficient, His. 118
- F**
- Fall, P. H.—Some Amusing Tilts Indulged in by Telegraph Operators 158
Feat in Telegraphy, A 392
Features of the Mimic War Operations 410
Fifty Years Ago (Referring to H. P. Dwight) 117
First Telegraph Lines in Texas—D. P. Shepherd 7
First Telegraph Line to British Honduras to be Opened 116
First Telegraph to Portland, Oregon 78, 98
Flowers for Poor Jim, A Few—M. W. Russell 165
Fouling the Atlantic Cables (Commercial Cable Co.) 101
Fourth of July Outing of the Commercial Cable Co., London 317
Frogs and Telegraphs 256½
- G**
- Galileo and the Magnetic Telegraph 480
Gamble, James—Telephone vs. Telegraph 142
Garland, Charles H.—To Prevent the Spread of Consumption Among Operators 94
Gates Paid Well for it, Pie was Good and 136
Geer, Henry Burns—Queer Quirks of the Quad 526
Get Out or Get In Line—Elbert Hubbard 417
Gifford's, S. B., Farewell Letter. 278
Gift to James W. Tillinghast 291
Gold and Stock Life Insurance Association, Annual Meeting 49
Gold and Stock Life Insurance Association, First Quarterly Report 175
Government Should Not Own and Operate The Telegraphs, Why the—Gen. T. L. James. 232
Government Telegraphy, The Beauties of 182
Grandy, D. B.—Bridging Over the Periods of Reversals 311
Great North Western Telegraph Co., Annual Meeting of 437
Greely, Gen. A. W., Annual Report 485
Greely Gen. A. W., On Wireless Telegraphy Matters 56
- Greely, Gen. A. W., The Signal Corps in the Philippines 207
- H**
- Hall, L. C.—Mistake Was One of Nature 65
Hand vs. Machine Telegraphy—P. B. Delany 389
Hawaiian Islands, Wireless Telegraphy Does Not Pay in the. 103
Heads of the Order of Railroad Telegraphers 52
Heard on the Wire 535
Heavenly in Morse Characters—Wm. R. Plum 29
Henry, Joseph, Proposed Memorial to 409
Hilton, C. E.—The Up-to-date Agent and Telegrapher 175
Howell, Robert—A Story by W. P. Phillips 79
How to Read Telegrams 189
Humorous Side of Telegraphy. 140
Hypnotic Power, By 191
- I**
- Iceland, By Wireless Telegraphy to 88
Important Business Change (Bunnell Consolidation) 426
Important Decision 478
Important Point of Law Decided 470
Improvement in Perforators—P. B. Delany 255
Incorporated, Cuban Telegraph Co. 22
Indifferentism (Communication with Editorial Comment) 436
Inductance, Neutralizing Capacity by—H. D. Cuprum. 181
Inefficient Telegraph System in The Philippines 181
Interment of the Remains of J. W. Mackay 492
International Association of Municipal Electricians (Executive Com. Meet.) 109
International Association of Municipal Electricians (Notice of Meeting) 169
International Association of Municipal Electricians (Coming Convention) 395
International Association of Municipal Electricians (Convention Report) 418
International Association of Municipal Electricians, Convention of 445
International Correspondence, Schools 51
International Telegraph Conference 522
International Yacht Races, Portable Quadruplex at—J. F. Skirrow 81
Irony of Fate 312
- J**
- James, Gen. T. L.—Why the Government Should Not Own and Operate the Telegraphs 232
Jones, Francis W.—Destruction of Wires by Storm 159
Jones, Francis W.—Low Resistance Relays 382, 438, 461, 476

Jones, Francis W.—Marconi's
Telegraphy 57
Jones, Francis W.—Telegraphy
and Photography are Twins... 312
Jones, Francis W.—The First
Atlantic Cable 395
Jones, Francis W.—The Second
and Third Atlantic Cables. 413, 432

K

Kelvin's, Lord, Appropriate Key
Not: 209
Klondike, Line Construction in—
Gordon Smith 6

L

Leaks, Stop the Small 56
Lee, Gen., and a Denver Tele-
graph Operator, Story of Con-
federate 191
Letters From Our Agents:
Albuquerque, N. M., Postal... 149
Albuquerque, N. M., Western
Union 149
Associated Press, The. 59, 219, 532
Bakersfield, Cal., Notes 149
Baltimore, Md., Western
Union 84, 106, 172, 379, 464
Bangor, Me., Western Union... 323
Beaumont, Tex., Postal 40, 150, 302
Beaumont, Tex., Western
Union 40, 302
Birmingham, Ala., Postal... 236, 259, 281
Birmingham, Ala., Western
Union 322, 422, 529
Boston, Mass., Postal 43, 85, 129, 194, 324, 464
Boston, Mass., Western Union
19, 85, 106, 129, 172, 218, 324, 346
Buffalo, N. Y., Western Union
..... 16, 60, 322
Cedar Rapids, Ia., Postal and
Western Union 127
Chicago, Postal 17, 40, 60,
83, 130, 151, 173, 194, 218,
237, 279, 302, 323, 379, 424, 466, 511
Chicago, Western Union 17, 40, 60, 83, 129, 151,
173, 194, 218, 237, 279, 349,
381, 401, 442, 489, 510, 529.
Cincinnati, Notes 19, 59
Cincinnati, Postal 423
Cincinnati, Western Union... 216, 258, 381, 401, 487
Cleveland, Notes 16
Cleveland, Postal 43, 127, 193, 303, 381, 441, 466, 510
Cleveland, Western Union... 441, 488, 510
Crowley, La., Postal 400
Dallas, Tex., Postal 509
Dallas, Tex., Western Union... 280
Denver, Col., Western Union
..... 83, 109, 238, 323
Evansville, Ind., Notes 488
Fall River, Mass., Western
Union 151
Fort Worth, Tex., Postal 59
Galveston, Tex., Western
Union 236
Gardiner, Me., Postal 236
Goshen, Ind., Notes 302
Houston, Tex., Postal 323
Houston, Tex., Western Union 399
Indianapolis, Ind., Postal 441

Indianapolis, Ind., Western
Union 61,
127, 259, 346, 423, 441, 464, 529
Jacksonville, Fla., Western
Union 322
Kansas City, Mo., Postal 40, 219, 345, 466, 530
Kansas City, Mo., Western
Union 107, 219, 400, 423
Lake Charles, La., Notes 63
Lake Charles, La., Postal 347
Lancaster, Pa., Postal 258
Lima, O., Notes 442
Los Angeles, Cal., Notes 279
Los Angeles, Cal., Postal 40, 59, 84, 259
Los Angeles, Cal., Western
Union 127
Louisville, Ky., Postal 347
Minneapolis, Minn., North
American Telegraph Co. 442, 532
Moncton, N. B., Western
Union 465
Montreal, Que., Canadian Pa-
cific 41,
107, 150, 174, 237, 261, 302, 488
Montreal, Great North Western
18, 59, 108, 150, 172, 236, 279,
302, 346, 381, 399, 442, 490, 510
Newport, R. I., Western Union 530
New Orleans, La., Notes 107
New Orleans, La., Postal 149
New Orleans, La., Western
Union 127, 149, 193, 218, 444, 487
New York, Postal .. 16, 42, 62,
87, 109, 131, 152, 174, 195, 217,
239, 261, 282, 304, 326, 348,
380, 402, 424, 443, 468, 490, 511, 531
New York, Western Union... 16, 42, 62, 87, 108, 130,
162, 175, 195, 216, 239,
260, 281, 304, 325, 348, 380,
402, 423, 443, 467, 490, 511, 531
Philadelphia Postal 20, 41,
63, 86, 105, 128, 151, 174,
193, 217, 239, 258, 280, 303,
325, 347, 401, 422, 467, 489, 530
Philadelphia, Western Union
19, 41, 63, 86, 106, 128, 151, 173,
193, 217, 238, 258, 280, 303,
324, 346, 378, 422, 442, 489, 512, 530
Phoneton, Pa., Notes 282
Pittsburg, Postal 61, 150
Pottsville, Pa., Notes 423
Quebec, Que., Great North
Western 108, 172, 400, 490
Reno, Nev., Western Union... 62
St. Louis, Western Union... 16, 59, 106, 128, 150, 172,
238, 259, 281, 303, 323, 509, 530
St. Paul, Minn., Western Union
..... 194, 529
San Francisco, Western Union
..... 105, 174
Savannah, Ga., Notes 301
Seattle, Wash., Western Union
..... 17, 347
Shreveport, La., Western
Union 400
Toledo, O., Western Union
..... 17, 84, 305
Toronto, Ont., Canadian Pa-
cific 490
Toronto, Ont., Great North
Western 18
Vancouver, B. C., Canadian
Pacific 84
Waco, Tex., Western Union 20, 86
Waco, Tex., Postal 488

Washington, D. C., Postal 237, 258, 279, 301, 345, 464, 532
Washington, D. C., Western
Union 108, 172, 301
Winnipeg, Man., Canadian Pa-
cific 83, 194
Woods Hole, Mass., Martha's
Vineyard Telegraph Co. 399, 464
Life of Telegraph Poles 496
Line Construction, Western
Union—C. H. Bristol 396, 411, 431, 453, 475
Load Coils in Use Between Chi-
cago and New York—Pupin... 232
Long, Will C.—Dallas, the Tele-
graph Centre of Texas 208
Lord, Robert C.—Conductivity
Measurements 51
Lord, Robert C.—Crosses upon
Telegraph Wires 51
Low Line Insulation and Low
Resistance Relays—William
Maver, Jr., ... 519
Low Resistance Relays—R. J.
Hewett, ... 421, 438, 460, 519
Low Resistance Relays—F. W.
Jones 382, 438, 461, 476
Low Resistance Relays—D. A.
Starkweather 421, 477

M

McKinley Memorial Fund 73
Mackay, C. H., Elected President 448
Mackay, C. H., Return of 406
Mackay, J. W., Interment of the
Remains of 492
Mackay Properties, The New
Head of the 480
Macnab, B. A.—Telegraphers,
Rhymsters and Poets 4
Madiera, Telegraphs and Tele-
phones in 463
Magnetic Club—Annual Meeting
..... 14, 36
Magnetic Club—Dinner 505
Magnetic Club—(Notice of) ... 444
Magnetic Club—Outing 282
Magnetic Club—Summer Outing 255
Mail in Tunnels, To Carry 184
Man Who Helped to Save the
Punjab (Wm. Brendish) 231
Marconi, Early Help to 77
Marconi in New York 30
Marconi on Wireless Telegraphy 321
Marconi Signals Across the At-
lantic 20
Marconi, The Same Old Story. 182
Marconi, Wiggins Will Sue 58
Marconi's Telegraphy—F. W.
Jones 57
Martinique, A Few Notes and
Reminiscence of—H. Alsbury
Pirie 254
Martinique, Cable Interruptions
With 202
Marvelous Telephone Growth... 76
Mason, F. G. Judgment Against
The United Press 69
Maver, Jr., Wm.—Buckingham
Long Distance Page-Printing
Telegraph 353
Maver, Jr., Wm., Low Line In-
sulation and Low Resistance
Relays 519
Medal, The Carnegie (Atlanta
Tournament) 250
Megaphone, The Very Latest—
H. L. Short 37
Mental Telepathy 74

Mental Anguish Doesn't Count.	96
Mercadier Telegraph System	338
Messenger Boy Stamps, The	478
Messenger's Fidelity Rewarded (Emmet Howard)	524
Metric System, 'Am. Inst. of Electrical Engineers Endorses the	139
Metric System, Kelvin and West- inghouse on the	206
Metric System of Weights and Measures	66
Mexican Cables	6
Mexican Telegraphs	292
Mimic War Operations, Features of the	410
Mistake Was One of Nature— L. C. Hall	65
Montgomery, Capt. B. F.—One of the "Old Guard"	225
Morrison, J. Frank, On the De- velopment of the Telegraph	118
Money Order Swindle, A New Telegraph	36
Morse, An Early Defender of	257
Morse Characters, Heavenly in —W. R. Plum	29
Morse Club Annual Dinner	241
Morse Code in a Flat	257
Morse, Settlement of the Estate of Prof.	414
Morse, S. F. B., Widow, Will of	207
Morse System, The Defense of the—J. C. Barclay	295
Morse, Woman's	96

N

Nally, E. J.—To Young Men Beginning Business	166
National Telegraph News Co.	412
Nerve Force, Electricity and	153
Neutralizing Capacity by Induct- ance—H. D. Cuprum	181
Never Heard of Philadelphia	209
New Head of the Mackay Prop- erties, The	480
New Method of Swindling	334
Newport, R. I., New Postal Of- fice at	102
News, Ownership of	486
New Use for the Telephone	97
New York Aid Society Enter- tainment	533
New York Telephone Co. (Elec- tion of Directors)	240
New York Visitors:	
Adams, C. C. 14, 157, 240, 331,	429
Altberger, J. P.	331
Baker, C. M.	309
Baker, E. B.	110
Bierhardt, J. E.	451
Braun, August	429
Budge, D.	26
Carroll, Joseph	26
Church, N. E.	429
Craw, Alex	240
Creamer, J. M.	26, 495
Darlington, Chas. A.	376, 451
De Shazor, S. D.	495
Dickey, J. J.	65
Diehl, C. E.	180, 278
Dodge, G. M.	480
Duncan, S. A.	26
Dyer, I. T.	429
Eddy, W. B.	495
Edgecomb, A. L.	288
Ellett, W. Y.	110, 429
Faulkner, P. J.	245

Feyerabend, Ernest	429
Field, S. D.	451
Flynn, J. D.	429
Forristall, S. A. D.	288
Foster, F. P.	429
Greentree H.	331
Hackett, F. C.	495
Haddon, H. G.	245
Hall, H. H.	240
Hern, D. J.	245
Holligan, W. R.	288
Hope, H. C.	424
Jacoby, J. H.	211
Jaynes, Frank	240
Johnston, G. R.	245
Jones, H. D.	240
Kates, J. W.	14, 65, 139, 240
Lang, Geo. L.	451
Larish, J. W.	288
Lemon, L.	331
Levin, J.	245
Lingafelt, A. R.	495
Lloyd, Wm. J.	110, 429
Logue, W. S.	157, 309
McCammon, T. A.	288
McIntosh, Col. J. R.	518
McKim, C. E.	157
McLean, J. W.	495
Mead, Morris W.	495
Miller, Robert A.	65
Miller, Leo	114
Mosher, S. H.	245
Nally, Edw'd J.	157, 309, 451
Osborne, H.	211
Patterson, C. E.	180
Peacock, J. E.	376
Peirce, W. E.	309
Pettingill, H. J.	245
Phillips, Walter P.	65
Pillsbury, E. B. 14, 180, 245,	288
Pope, Henry W.	211, 331
Porte, A. R.	451
Quick, L. W.	451
Reed, J. W.	288
Reynolds, H. D.	211, 398
Robinson, J. S.	245
Rosewater, E.	278
Rowe, James E.	331
Russell, Clinton P.	180, 376
Sabin, John I.	451
Sawyer, W. A.	278
Selden, Chas.	114
Shaw, Leon	429
Splane, J. G.	309
Splane, W. W.	104, 309, 518
Stevens, A.	110
Stimpson, C. A.	65
Stockwell, E. C.	429
Swain, W. C.	114
Tanquary, L. A.	14
Terry, A. C.	278
Tree, J. B.	240
Tuttle, H. A.	331
Van Devender, H.	278
Ward, C. H.	451
Waycott, F. H.	26
Williams, W. F. 65, 398, 451,	480
Williams, W. H.	157
Wright, E. P.	495
North Borneo Telegraphs—C. Bradbury	533
Nourse, Fred O. A. Presenta- tion to	253

O

Obituary:	
Abrams, Mrs. Julia	242
Armstrong, J.	202
Askin, A. H.	156
Barberie, E. T.	263

Bayley, Edward D.	272
Beale, John	331
Bennett, H. D.	65
Bradley, Joseph	42
Brooks, Mrs. Sallie C.	202
Brown, Geo. S.	152
Burke, Edward	409
Burns, W. E.	44
Carley, Wm.	332
Carr, W. W.	242
Carrell, P. J.	43
Clark, Archibald	452
Cleary, John J.	217
Cleary, Thomas F.	581
Coe, Geo. A.	44
Cord, T. O.	387
Creelman, And. T.	452
De Akers, Robt. L.	152
De Witt, Wesley K.	473
Donner, J. B.	364
Dunham, Mrs. C.	70
Donigan, James J.	304
Eckert, Mrs. Joanna C.	44
Edwards, John M.	69
Emerick, John H.	201
Fagan, James J.	113
Farley, James	529
Farrell, Frank	202
Farrell, James F.	261
Farrell, A. S.	44
Fish, E. Warren	15
Fitch, Lyman E.	263
Forbes, D. D.	17
Gannon, John	69
Goodwin, Edward	44
Gough, Richard S.	15
Harner, Wm. P.	113
Harris, W. O.	65
Hawn, Geo. L.	518
Henry, Patrick	44
Hibbard, Wm. B.	473
Hill, Clinton D.	242
Hill, F. C.	495
Hoefel, Christian	258
Hopping, James	135
Hunter, Wm. F.	272
Hutchinson, Mrs. A. J.	491
Jaggard, Rob't W.	15
Jodrey, Jacob	465
Johnson, Robert Lee	40
Jones, Allen H.	288
Laney, Elizabeth F.	495
Linn, Edward E.	409
Lundy, Chas. W.	15
Lyons, Miss Nonie	175
Macdonald, Jno. A.	156
MacDonald, S. J.	65
MacKenzie, Wm.	65
McCargo, David	70
McElhiney, A. T.	409
McGarvin, O. H.	387
McGilton, Wm. H.	346
McKinley, J. F.	65
McLaughlin, Mrs. Josephine	263
McNally, James H.	202
McRoy, John W.	15
Mackay, John W.	319
Marean, Morrell	272, 301
Martin, Don C.	387
Mason Mrs. E. H.	113
Merrill, Gib. D.	490
Metz, Wm. H.	180
Milliken, James	69
Mingle, James A.	62
Morgan, Lee	364
Murray, James A.	156
Newport, D. W.	130
Noden, Wm. H.	409
North, Wm. J.	135
Ochiltree, T. P.	495
Orton, Thomas	518

- Paddock, W. D. 401
 Paulhamus, H. T. 151
 Perrine, Rob't W. 304
 Phillips, Roxana M. 202
 Platt, Miss Edith Hunter ... 531
 Porter, Chas. H. 180
 Price, Chas. W. 272
 Printz, Geo. W. 364
 Pulcipher, Milo 65
 Ramsay, B. F. 113
 Reynolds, T. W. 387
 Rutherford, R. 512
 Sandeen, F. A. 452
 Sawyer, Chas. H. 364
 Scott, Hunter M. 156
 Senf, Geo. 156
 Shannon, W. W. 152
 Sherwin, Henry F. 217
 Smith, Charles 473
 Smith, Geo. D. 194
 Spencer, Wm. H. 518
 Sperry, Geo. C. 518, 530
 Springer, Moses S. 180
 Snyder, M. L. 152
 Stanton, Cullen M. 135
 Stump, Clarence E. 242
 Sweeney, Michael 65
 Swinton, John 15
 Temple, F. J. 242
 Terrell, A. T. 242
 Thomas, Grace E. 279
 Thornton, C. W. 44
 Tierney, Anna R. 156
 Toomey, M. H. 44
 Turnan, John 491
 Turner, Eugene 531
 Turner, W. C. 473
 Van Horne, John 536
 Van Walraven, Andrew 452
 Walker, David R. 242
 Walker, E. F. 288
 Wallace, W. J. 288, 322
 Warhurst, A. C. 332
 Westbrook, Cherrick 518
 White, Albert C. 288
 Whitford, Edw'd Payson ... 387
 Wilder Samuel 135
 Williamson, Geo. R. 452
 Wood, Chas F. 272
 Woolsey, R. B. 495
- Ogden Relay Office, Passing of the 101
 "Old Guard," One of the (Capt. B. F. Montgomery) 225
 Olden Times, Telegraphy of ... 76
 Old Times in Telegraphy 99
 Old Time Telegraphers' Association 51, 153
 Old Time Telegraphers' Association Reunion at Salt Lake City 373, 403
 Old Time Telegraphers' Association, Echoes From 425
 Old Time Telegraphers' Association Executive Committee Appointed 450
 Old Time Telegrapher, Reminiscences of an—H. A. Reed, 120
 Only a Cigar 317
 Opposes Federal Telegraph—W. S. Bissell ex-Postmaster General 73
 Original Pacific Cable Proposition Withdrawn 39
 Ownership of News 486
 Organization, 308, 332, 376, 418, 437, 452, 473, 513, 534
 Pittsburg Convention of Commercial Telegraphers 534
- Telegraphers Organizing ... 308
 Thomas Percy, Chosen President 452
- P**
- Pacific and Atlantic Telegraph Co. (Election of officers) ... 240
 Pacific Cable Bill (Corliss) Dead 264
 Pacific Cable (Commercial) To Push the 22
 Pacific Cable Proposition Withdrawn, Original 39
 Pacific Cable, The President and the 520
 Passing of the Ogden Relay Office 100
 Patent Law, British and American 169
 Pennsylvania Railroad, Action Against 455
 Pension, A Well Deserved.(J. A. Brenner) 491
 Pension Fund Proposition:
 The Carnegie Proposition (J. P. Williams) 3
 Communications on—"Justice," "L. C. M.," "X" 39
 Communication on—D. McNicol 54
 Communication on—"I. V. C. J.," A Cray 72
 Communication on—P. J. McKeever 100
 Organizing for 143
 Communication on—"A Subscriber," Cleveland, O. 144
 Communication on—M. D. Crain, Sr. 184
 Communication Containing Carnegie letter to Connolly Report of F. W. Jones and Others 365
 Notices of Meeting, P. J. Tierney 434, 478
 Communication from E. F. Howell 462
 Meeting in Regard to 507
 Perforators, Improvements in —P. B. Delany 255
- Personal Mention:
 Ahearn, Thos. 48
 Alexander, P. H. 179
 Allen, Wm. H. 252
 Altberger, J. P. 219
 Bagley, C. E. 92
 Baird, James R. 451
 Baker, E. B. 70, 179
 Baker, W. H. 240
 Bakewell, Col. Allen C. 179, 287
 Barclay, J. C. 156, 220, 309, 388, 472, 516
 Bassett, F. N. 219
 Beeven, F. W. 424
 Beck, Albert 219, 428
 Bradbury, C. 114, 472
 Bradley, E. C. 21, 220, 252, 388
 Brewer, A. R. 388
 Bristol, C. H. 156, 220, 252, 388
 Brixey, W. R. 48
 Brooks, B. 220, 287, 472
 Bruch, Chas. P. 21, 48, 220, 423
 Candee, Wm. C. 179
 Chandler, Col. A. B. 92, 156, 284, 331, 364, 451, 516
 Clapperton, Geo. 21
 Clark, Thomas F. 21, 139
- Clowry, Col. R. C. 22, 44, 92, 309, 364, 472, 516
 Cobb, Emory 114
 Cochran, James 70
 Cox, Arthur 284
 Crowder, S. R. 388
 Davies, David R. 156
 De Frece, Col. A. B. 240
 Dickey, J. J. 43
 Diehl, Col. Chas. E. 284
 Dresser, F. S. 220
 Duncan, S. A. 139, 179
 Dunn, O. M. 179
 Durland, D. C. 451
 Dwight, H. P. 46, 156
 Dwight, Lyman 43
 Eckert, Thos. T., Jr. 139
 Edgecomb, A. L. 92
 Edison, Thos. A. 21, 114, 220, 287
 Estabrook, Henry D. 309
 Estabrook, Miss Blance 331
 Fearons, G. H. 92
 Fenn, S. 70
 Ferrin, F. M. 240
 Field, S. D. 240
 Fleming, Thos. E. 240
 Gannon, Frank S. 472
 Gaunt, C. H. 114
 Gavey, John 179
 Greatsinger, Jacob 70, 220
 Hope, H. C. 156
 Horton, C. B. 179
 Johnston, W. J. 48
 Jones, Francis W. 70
 Kaufman, A. C. 220
 Kelvin, Lord 48, 135, 179, 220, 287
 Kennelly, Dr. A. E. 240
 Klein, John M. 219
 Lang, Geo. L. 70
 Leslie, E. A. 220
 Lodge, Sir Oliver 287
 McIntosh, Col. J. R. 224
 Mackay, Clarence H. 424, 516
 Mackay, John W. 224, 253
 Marconi, Signor 21, 48
 Markle, John 114
 Martin, T. C. 220
 Mason, Frank C. 364
 Mercadier, Prof. 43
 Morse, Miss Leila 472
 Muirhead, Dr. Alex. 516
 Munsey, Frank A. 44
 Muraki, Mr. 331
 Nelson, J. C. 179
 Paine, Robert F. 284
 Payne, Henry C. 22, 44
 Plaisted, James W. 220
 Plum, W. R. 284
 Pope, Henry W. 517
 Pope, Ralph W. 428
 Porter, Geo. F. 48, 240, 287, 494
 Reynolds, C. H. 287
 Reynolds, H. D. 139, 220
 Sabin, J. I. 44, 179
 Sabold, F. W. 240
 Schoyer, A. M. 70
 Smart, Jno. H. 22
 Smith, Garritt 70
 Smith, Isaac 219
 Smith, J. C. 219
 Sprague, Frank 220
 Squire, Capt. G. O. 240
 Stone, M. E. 117, 240, 388, 516
 Swortfeger, G. F. 179, 219
 Taylor, A. B. 70
 Tesla, Nikola 220
 Tinker, A. L. 44
 Tinker, Chas. A. 21, 284
 Usher, G. H. 139
 Wallick, John F. 516

Ward, G. O. G. . . . 114, 219, 220, 424
 Philadelphia, Never Heard of. 209
 Philadelphia, Reading and
 Pottsville Telegraph Co.,
 Election of Officers 433
 Philippines, Inefficient Telegraph
 Service in the 181
 Philippines, The Signal Corps
 in the—Gen. Greely 207
 Philippine Telegraph System . . . 440
 Phillips Code, A New Edition
 of 274
 Picture Telegraphy 522
 Pie Was Good and Gates paid
 Well for it 136
 Pirie, H. Alsbury—A Few
 Notes on Reminiscences of
 Martinique 254
 Plow, Cable Laying 250
 Plummer, Dr. O. P. S., The First
 Telegraph to Portland, Ore. 78, 79
 Pocket Diagrams and Book-
 keeping Methods 345
 Poles, Creosoting of 256½
 Police Telegraph Reports in
 New York, What the 306
 Portable Quadruplexes at the
 International Yacht Races—
 J. F. Skirrow 81
 Portland, Ore., The first Tele-
 graph to—Dr. O. P. S. Plum-
 mer 78, 98
 Porto Rico, The Telegraph in. 450
 Postal and Telegraph Griev-
 ances (English Trade Union
 Congress) 433
 Postal Displaces Western
 Union on Pennsylvania Rail-
 road 278
 Postal Takes Possession 294
 Postal Main Office at Buffalo, New
 York 206
 Postal Main Office in Chicago,
 New 184
 Postal Office at Newport, R. I.,
 New 102
 Postal Office at Savannah, Ga.,
 New 508
 Postal Telegraph-Cable Chang-
 es, Important 64
 Postal Telegraph-Cable Co.
 Declares its Position 317
 Postal Telegraph Changes 30
 Postal Telegraphy, A Plea For
 Postal Telegraphy 313
 Postal Telegraphy, Communi-
 cations on: "A Reader" 161;
 "P. A. Peterson," 161; "Old
 Subscriber" 205
 Postmaster General's Idea, The
 New 54
 Post Office Official Telegraph-
 ing 450
 Post Office Orders by Tele-
 graph 294
 Press Association, Scripps—
 McRae (Annual Meeting) . . . 264
 Preece, W. H., on Wireless Tele-
 graphy 391
 Presentation to T. A. Brooks. 230
 Presentation to Theo. P. Cook. 212
 Presentation to Fred O. Nourse 253
 Printing Telegraph Patents,
 Rowland Multiplex 65
 Profits in Raising Trees For
 Telegraph and Railroad . . . 109
 Proves the Theory of Tele-
 pathy 94
 Publishers' Press, Annual
 Meeting of 228

Punjab, Man Who Helped to
 Save the—Wm. Brendish. . . . 231
 Pupin and the Telegraph. . . . 227, 247
 Pupin's Asymmetrical—Current
 Device for Telegraph Circuits 497
 Pupin Awarded Priority in
 Multiplex Telegraphy 391
 Pupin Load Coils in Use Be-
 tween Chicago and New York 232
 Pupin Secures Tuning System 206
 Purchasing Loan Association,
 New York (Who Will Act?) 190
 Purchasing Associations 504

Q

Queer Quirks of the Quad—
 Henry Burns Geer 526

R

Racing News, Lawful to Send. 12
 Railroad Telegraphers, Heads of
 the Order of. 52
 Railroad, The Telephone on the. 468
 Railroad Telegraph Superintend-
 ents, Convention of 262
 The Railroad, 137, 180, 214, 223, 309,
 350, 372, 398, 428, 463, 491, 512, 535
 Adams, C. P., Appointed. 428
 American Railway Association,
 Annual Meeting 491
 Apparatus for delivering tele-
 graph orders (A. M. Mc-
 Kenna) 491
 Blending, F. L., Resigned. . . . 535
 "Blind Siding" Telephoning
 on the Chicago, Burlington
 and Quincy 214
 Chace, Horace E., Appointed. . . 309
 Cudlipp, F. D., Appointed. . . . 428
 Delany Automatic Telegraph
 System Installed at Harris-
 burg and Pittsburg 137
 Dickinson, E., Appointed. 491
 Evans, J. T., Appointed 398
 First Copper Wires for Tele-
 phone on Del. Lack. and
 Western 214
 Freese, W. A., Appointed. 372
 Hewett, Percy, Appointed. . . . 428
 Hope, H. C., Elected. 512
 Millington, E. H., Appointed. . . 350
 Nutter, Coleman, Appointed. . . 463
 Peters, Ralph, made Chairman. 372
 Pennsylvania R. R., Under-
 grounding Wires of 162
 Roome, A. E., Appointed. 424
 Sherman, F. E., Appointed
 Signaling System Patent, W.
 W. Salmon 180
 Spaford, F. J., Appointed 309
 Swift, A. R., Resigned. 428, 512
 Teed, H. D., Appointed. 463
 Telephone Exchanges on the
 Chicago, Burlington and
 Quincy 214
 Telephone (Long Dist.) on the
 Chicago, Burlington and
 Quincy 180
 Railroad Work, The Telephone
 For 87
 Railway Service, Telephone in.
 J. J. Tate 289
 Recognition, Quick. A story of
 Recognizing Operators Send-
 ing. A. H. Seymour 8
 Redding, M. H., Testimonial to. 10
 Red Headlight Understood Morse 528
 Red Sexton's Change of Venue.
 A Story. B. C. Wilkins. 34

Reminiscence of Gen. Eckert. . . 142
 Reminiscences of an Old Time
 Telegrapher. H. A. Reed. . . . 120
 Reapproval for Working too Fast. 384

Resignations and Appointments:

Ahern, Joseph. 473
 Altberger, J. P. 220, 224
 Altemus, E. 224
 Ambrose, J. G. 494
 Ames, Chas. F. 224, 246, 331
 Andres, F. N. 451
 Annand, J. 135
 Arthur, H. H. 246, 307
 Arenstrop, Miss P. C. 409
 Barth, William. 409
 Beatty, Mrs. 517
 Beck, F. C. 494
 Bedlow, Chas. C. 494
 Bender, F. L. 429
 Benjamin C. W. 494
 Benjamin, G. R. 386
 Benjamin, Mrs. 494
 Benster, Alfreda. 472
 Bentley, S. G. 287
 Blake, J. G. 139
 Blandin, C. O. 472, 494
 Bliss, R. C. 362, 429
 Bloxham, Richd. J. 287
 Boothby, Geo. B. 135
 Boone, L. N. 201, 517
 Bott, Fenton P. 409
 Boyd, Frank G. 135
 Boyer, A. 494
 Brady, Miss. 517
 Brady, P. T. 517
 Brenner, J. A. 409
 Briggs, C. H. 287
 Brooks, Belvidere. 362
 Brooks, E. B. 494
 Brown, A. A. 224
 Brown, John W. 451
 Brown, L. A. 246
 Browne, Walter. 157
 Butler W. H. 224, 451, 472
 Cahoe, J. A. 372
 Calvert, Geo. R. 409
 Carlson, A. 224
 Carney, J. E. 451
 Carswell, W. C. 494
 Cervený, H. B. 386
 Church, N. E. 246
 Clark, A. B. 517
 Clark, C. E. 246
 Clark, G. A. 517
 Cline, W. P. 429
 Cobourne, J. R. 494
 Cole, C. Ray. 517
 Compton, D. J. 429
 Comstock, Curtis A. 386
 Conrad, W. E. 331
 Cord, E. E. 409
 Coy, E. T. 451
 Creamer, J. M. 287
 Crews, J. W. 287
 Crighton, Geo. 269
 Crothers, J. H. 429
 Crowder, S. R. 362
 Crowley, J. M. 451
 Cudlipp, F. D. 429
 Curtis, Sidney B. 287
 Davies, J. G. 473, 517
 Deal, Geo. A. 517
 Dean, F. J. 409
 Dean, Mrs. L. Havens. 472
 Dempsey, Ella May. 472
 Dikeman, M. E. 429
 Dodge, W. J. 409
 Dolbear, W. H. 246
 Drakeford, J. H. 157

- Drehner, Rudolph..... 429
 Dresser, F. S..... 220
 Dougherty, C..... 224
 Duckett, F. P..... 409
 Durgin, Wm..... 246
 Eames, Geo..... 472
 Eddy, W. B..... 517
 Eitemiller, Geo. M..... 269
 Elms, Joseph A..... 409
 English, Shirley M..... 287
 Erwin, C. H..... 219, 224
 Fairchild, W. H..... 517
 Fellowes, Wm..... 517
 Ferrin, Geo. L..... 473
 Finn, William..... 386
 Fisher, A. M..... 224
 Flagler, Sidney H..... 113
 Flynn, J. D..... 362, 494
 French, Wm. H..... 387
 Fritters, V. W..... 472
 Gentry, W. T..... 287
 Gellatly, Wm..... 224
 Getches, Geo..... 429
 Gifford, S. B..... 224
 Gill, Wm. B..... 224
 Going, Miss K..... 451
 Gilliam, John..... 494
 Good, F. J..... 135
 Gorman, R. T..... 494
 Goshert, E. A..... 362
 Gould, A. T..... 246, 429
 Goeding, T. W..... 264
 Granger, V. A..... 472
 Grant, J. J..... 494
 Griffin, M. W..... 472
 Griffith, E. W..... 331
 Gurney, Mr..... 246
 Guthrie, W. H..... 451
 Hamblin, M. W..... 246
 Hargrave, Jesse..... 386
 Harriman, Henry..... 209
 Harris, W. A..... 362, 409
 Harper, Thos. H..... 269
 Hayden, Miss Alice..... 517
 Heindel, F. W..... 494
 Heminger, Mrs..... 246
 Hern, D. J..... 331
 Herring, W. H..... 494
 Herron, W. I..... 517
 Hesse, H. E..... 517
 Higgins, J. P..... 451
 Hill, J. A..... 246
 Hoke, C. F..... 331
 Horan, David..... 269
 Horton, E. E..... 224
 Howard, Emmet..... 517
 Hughes, Frank..... 246
 Huntzberry, Charles E..... 517
 Hyland, M. H..... 472
 Irwin, T. A..... 517
 Jaynes, Frank..... 264
 Jenkins, John E..... 269
 Johnson, A. C..... 362
 Johnson, C..... 451
 Johnson, E..... 451
 Johnston, R. P..... 451
 Jones, Chas. L..... 309, 429
 Jones, Miss Mary..... 472
 Julienne, A. L..... 473
 Kearens, John J..... 494
 Kern, Phil G..... 517
 Killian, H. M..... 451
 King, Bert H..... 309, 429
 Klettenger, S. K..... 517
 Lafferty, A. L..... 269
 Landon, W. D..... 309
 Langley, J. C..... 429
 Larish, J. W..... 362
 Lay, J. G..... 472
 Lerch, D. E..... 246
 Le Rougetel, Daniel..... 224, 269
 Livermore, C. D..... 451
 Lloyd, W. G..... 494
 Lobaugh, L. G..... 246
 Lockrow, H. J..... 473
 Lynch, D..... 386, 387
 McCabe, J. P..... 517
 McCammon, T. A..... 269
 McCranie, M. H..... 451
 McDonald, A. P..... 224
 McDonald, J. D..... 517
 McKee, J. R..... 451
 McMurchey, G. F..... 472
 McWilliams, A. H..... 429
 Madden, W. J..... 517
 Maguire, Geo..... 309
 Mahoney, Chas..... 494
 Maisack, Paul S..... 517
 Maize, W. H..... 246, 429
 Malone, Dr. Chas..... 372
 Maxwell, Lewis J..... 451
 Merrick, L. N..... 269
 Metcalf, M. F..... 472
 Miller, J. H..... 429
 Mills, A. J..... 451
 Mills, G. H..... 517
 Moffitt, F. V..... 246
 Moore, E. T..... 517
 Moore, F. A..... 246
 Morris, C. H..... 451
 Motts, E. M..... 517
 Mudge, S. H..... 224
 Mulford, C. H..... 409
 Mulford, E. M., Jr..... 219, 224
 Munger, E. J..... 473
 Munro, W. N..... 517
 Murphy, Chas. H..... 220, 224, 269
 Nash, F. D..... 429
 Nieman, H. J..... 451
 Nourse, Fred. O..... 239
 O'Brien, J. V..... 386
 O'Connor, J. J..... 494
 O'Driscoll, D. M..... 451
 Ordway, W. H..... 287
 Osterhout, C. C..... 472
 Owings, L. M..... 287
 Page, Chas. E..... 157, 331, 362
 Paine, G. E..... 224
 Peacock, W. H..... 409
 Peacock, W. S..... 494
 Peck, A. E..... 494
 Peirce, W. E..... 429
 Pfund, B..... 264
 Phillips, W. T..... 517
 Plaisted, James W..... 220
 Powers, J. R..... 494
 Prentice, J. A..... 494
 Quisenberry, Samuel..... 494
 Ramsey, Clarence C..... 472
 Rawson, H. E..... 287
 Rayens, M. W..... 362
 Reade, J. F..... 287
 Reed, J. W..... 269, 287
 Riederich, G. A..... 409
 Roberts, H. E..... 362
 Roberts, Ralph A..... 517
 Roche, Thomas..... 331
 Ross, Frank..... 409
 Rothery, F. W..... 224
 Russell, Clinton P..... 287
 Russell, T. E..... 362, 409, 517
 Sabold, F. W..... 240
 Sawyer, W. A..... 269
 Saylor, A. G..... 269
 Saylor, E. B..... 287, 362
 Schultz, Gustav..... 287, 309
 Schofield, Chas. W..... 386
 Scoria, R. E..... 451
 Seifred, E. A..... 331
 Seifred, W. S..... 331
 Sharp, C. B..... 309
 Sherman, Henry C..... 224
 Sholes, Chas. G..... 224, 409
 Simmonds, John..... 246
 Sims, Frank..... 472
 Slawter, Chas. B..... 309
 Smith, Herbert..... 224
 Smith, J. C..... 219
 Smith, J. J..... 287
 Smith, M. J..... 264
 Spry, Wm. H..... 330
 Stager, Chas. O..... 246
 Stancliff, C. H..... 269
 Stanley, A. M..... 473
 Stewart, Louis S..... 331
 Strickland, A. G..... 135
 Sullivan, J. A..... 409
 Swisher, H. W. P..... 113
 Terhune, J. R..... 451
 Thompson, C. N..... 286
 Thompson, G. F..... 472
 Tiffany, L. R..... 429
 Tillinghast, J. W..... 269
 Titus, Frank L..... 269
 Tuttle, Miss Fannie..... 517
 Upton, Harry E..... 246
 Van Devender, H..... 451
 Vaughn, Robert W..... 246
 Von Chauvin, Geo..... 224
 Wagoner, W. W..... 451
 Walker, William..... 429
 Weimann, Wm. C..... 409
 Wentworth, J. H..... 517
 West, W. D..... 409
 Winn, R. E..... 494
 Winter, Edgar..... 451
 Wise, L. F..... 494
 Wolfe, F. E..... 452
 Woodle, Allen..... 451, 473
 Woodworth, F. C..... 309
 Wyman, F. L..... 429
 Yeakle, J. B..... 242
 Zeliff, C. L..... 246
 Return of C. H. Mackay..... 406
 Revised Army Code Saves Money..... 521
 Rhodes, Mr., and the Trans-
 african Telegraph Company... 163
 Roberson Quadruplex System... 69
 Robinson, J. H.—The Telegraph
 and the Weather Service..... 455
 Rowland Multiplex Printing
 Telegraph Patents..... 65
 Russell, M. W.—A Few Flowers
 for Poor Jim..... 165
 S
 St. Petersburg via Alaska, To,
 (Russian American Cable Co.) 57
 Salvador, Telegraphs of..... 311
 Savannah, New Postal Office at 508
 Scripps-McRae Press Associa-
 tion (Annual Meeting)..... 264
 Seeing By Wire..... 101
 Self-Help Made Him Mayor of
 Boston. (P. A. Collins)..... 39
 Semaphores in 1838..... 469
 Serial Building Loan and Sav-
 ings Institution. (Annual
 Meeting.)..... 49
 Setting Bones by Telegraph.... 321
 Settlement of the Estate of Prof.
 Morse..... 414
 Shorty's Shade. (A Sketch.)... 341
 Sidetracked (A Story)..... 11
 Signal Corps in the Philippines.
 Letter from Gen. A. W. Greely 207

Simultaneous Telegraphy and Telephony. (Am. Tin Plate Co.)	70
Slang, The Use of	397
Smith, Gordon,—Line Construction in the Klondike	6
Some Points on Electricity:	
Adverse Properties of Positive and Negative Electricity	471
A Few Hints Regarding the Adjustment of Telegraph Apparatus	385
A Few Questions and Answers	351
An Overlooked Source of a Perplexing but Familiar "Trouble"	449
Barclay's Direct Repeating Relay for Multiplex Circuits	285
Best Repeater, The	471
Contemplated Improvements in a Telegraph Apparatus	307
Equipment of a Modern Telegraph Office. The Wiring and Arrangements of Apparatus, 1; Repeaters: Woods Button and the Toys, 23; The Neilson Repeater, Theoretical, 45; Neilson Repeater Actual Connections; Weincy-Phillips Repeater, 46-47; Atkinson Repeater, Half-Milliken Repeater 67, 69; Horton Repeater, Half Milliken Repeater, Defective Loop or Side Line Repeater 89, 90, 91; Double Loop Repeater, Office Loop Connections, 111, 112; The Wheatstone Automatic Duplex, 133; Concluded, 155.	
How to Connect the Coils of an Ordinary Single Line Relay in Multiple and Why it is Sometimes done	515
Some Points on Electricity	329
Storage Battery.—As Applied and Arranged in the Telegraph Service, 177; Continued.—Methods of Charging and Regulation of the Rate, 199, 200; Continued, 221; Continued 243; Storage Battery Concluded, 265;	
Wire Testing, A Point on	493
Sound Reading Operator, The first (De Wilmot Smith.)	44
South Africa, Telegraph Situation in	118
Speed of Transmission in Telegraphy	521
Standard Telephone Company	74
Stevens Wheatstone Transmitter, The	202
Stop the Small Leaks	56
Strikes in Canada, To Prevent	256½
Submarine Cables as Accessories to Land Telegraph Lines.—A Davidson	352
Submarine Cables in War	257
Swearing to Secrecy (Among Telegraphers.)	116
Symbols "I" and "C"	74
Sympathetic Tale.—The Widow and the Telephone	327
Syntograph (In Place of Wireless Telegraphy.)	48

T

Telegrams, Delivery of	58
Telegrams, How England Sends	256½
Telegrams, How to Read	189
Telegraph and the Weather Service—J. H. Robertson	455
Telegraph Bookkeeping, A Better Understanding of	502
Telegraph Breakdown in England	4
Telegraph Business, Britain's	469
Telegraph Business Was Dull, When	115
Telegraph Changes, Postal	30
Telegraph Company, Eastern, Annual Meeting of	26
Telegraph Company, Incorporated, Cuban	22
Telegraph Company, Annual Meeting of Montreal	50
Telegraph Conference (London) Postponed	37
Telegraph Conference, International	522
Telegraph, Development of, J. Frank Morrison on the	118
Telegraph in Alaska, The	250, 288, 364
Telegraph in Iowa, The	54
Telegraph in Porto Rico, The	450
Telegraph Line, Benefit by Alaska	56
Telegraph Line in Texas, First —D. P. Shepherd	7, 28
Telegraph Line to British Honduras to be Opened, First	116
Telegraph Lines, Cuba's	241
Telegraph Money Order Swindle, A New	36
Telegraph, Opposes Postal—Ex. P. M. Gen. W. S. Bissell	73
Telegraph Poles Damaged by Woodpeckers	13
Telegraph Poles, The Life of	496
Telegraph Post Office, Orders by	294
Telegraph, Prof. Pupin and the	227, 247
Telegraph Situation in South Africa	118
Telegraph System Installed at Harrisburg and Pittsburg, Delany Automatic	137
Telegraph System in the Philippines, Inefficient	181
Telegraph System, The Mercadier	96
Telegraph System, Crehore-Squire Automatic	206
Telegraph System Statistics	311
Telegraph System, The Philippine	440
Telegraph, The Public's Ignorance of the—Mary E. De Gintner	55
Telegraph to Portland, Ore., The First—Dr. O. P. S. Plummer	78, 79
Telegraph Transmitting Device —(C. E. Yetman)	407
Telegraph, Underground Trunk (England)	225
Telegraph, Western Union, Annual Meeting of	507

Telegraph, Western Union, Installation of Roberson Quad System	69
Telegraph, Western Union, New Main Office at Savannah, Ga.	69
Telegraph Wires, Locating Crosses Upon	51
Telegraph, Why Uncle Sam Should not Own the—Chas. H. Grosvenor	205
Telegraph Patents:	
Attachment for Telegraph Keys—A. A. Lohr	246
Automatic Fuse Switch—C. A. Stimmon	264
Automatic Tape Perforator	450
Automatic Telegraph Key—S. R. Wright	308
Automatic Telegraph Key Closer—J. E. Pomson	386
Automatic Unrolling of Paper Ribbon—L. Cerebotani	450
Button for Telegraph Keys —H. J. Greule	533
Combination Typewriter and Telegraph Transmitter —C. E. Yetman	91
Fire Alarm Telegraph Repeater—C. E. Yetman	91
Fire Alarm Telegraph Repeater L. G. Woolley	162
Fire Alarm Telegraph Thermostat—R. G. Callum	376
Multiple Telegraphy—M. J. Pupin	376
Multiplex Telegraph Circuit Instrument—L. A. McCarty	264
Multiplex Telegraph System—L. A. McCarty	113
Multiple Telegraphy—S. A. Brown	308
Page-Printing Telegraph—G. M. S. Angelo	386
Printing-Telegraph—L. Cerebotani	91, 162
Printing-Telegraph Electrically—B. A. Brooks	264
Railway Block Signal System—W. M. Chapman, Wm. Pestell	264
Quadruplex Telegraph Apparatus—A. C. Crehore	480
Recording and Checking in Railway Signaling—H. M. Weaver	411
Repeater—John P. Gorton	140
Repeater—J. W. Gray	264
Selection Call for Telegraph or Telephone Lines—Wm. Palmer, Jr.	444
Sunder, A Telegraph—John A. Albertson	202, 242
Sunder, A Telegraph—G. A. Green	179
Submarine Cable System—A. C. Crehore, A. J. Squire	480
Systems of Telegraphy—A. C. Crehore	386
Telegraph Insulator—J. E. Murray	533
Telegraph Key, Portable—Chas. Shirley	25
Telegraphic or Telautographic Apparatus—E. K. Gruhn	533
Wheatstone System, Improvement in—Sidney G. Brown	266

Telegraphs and Telephones in Madeira 463
 Telegraphs, Brazil's 71
 Telegraphs, Frogs and 256½
 Telegraph, Mexican 292
 Telegraphs of Salvador 311
 Telegraphs, Wants Uncle Sam to Buy 14
 Telegraphphone, The 256
 Telepathy, Mental 74
 Telepathy, Mental, Proves the Theory of 95
 Telephone and Telegraph, Control of by Dominion Government 118
 Telephone at Your Car Seat 226
 Telephone For Railroad Work... 87
 Telephone Growth, Marvelous.. 76
 Telephone In Railway Service.. 289
 Telephone, New Use for the... 97
 Telephone on the Railroad 468
 Telephone vs. Telegraph—James Gamble 142
 Tells of Electric Waves 95
 Ten Mile Shouter, A 37
 They All Looked Alike to Him.. 169
 Things Left in Cars 492
 Thirty Thousand Dollars a Year for Telling the Time 499
 Tillinghast, James W., Gift To.. 291
 Time Service, Western Union... 377
 Tournament, Atlanta Telegraph 50, 70, 102
 Tournament, Atlanta Telegraph, Report of 122
 Tournament The Next Telegraph Telegrapher, For Discharging a Telegraphers' Association, Old Time 51
 Telegraphers, Heads of the order of 52
 Telegraphers' Mutual Benefit Association 49, 91, 137, 198, 230, 284, 311, 382, 450, 496
 Telegraphers' Mutual Benefit Association Agents, New .. 345
 Telegraphers' Mutual Benefit Association, Changes Among Agents 534
 Telegraphers Organizing 305
 Telegraphers Reinstated, Chicago 274
 Telegraphic, Experiments in Germany (Rowland System) 270
 Telegraphing in 1846 93
 Telegraphing Through His Hat 228
 Telegraphy, A Feat in 392
 Telegraphy and Photography are Twins—F. W. Jones... 312
 Telegraphy and Telephony, Simultaneous (Am. Tin Plate Co.) 71
 Telegraphy, A Plea for Postal 76
 Telegraphy, Humorous Side of 140
 Telegraphy in Arabia 55
 Telegraphy, Marconi's—F. W. Jones 57
 Telegraphy of Olden Times .. 76
 Telegraphy, Old Times in 99
 Telegraphy, Postal 313
 Telegraphy, Postal—"Old Subscriber," 205; "P. A. Peterson," 161; "A Reader," 161
 Telegraphy, The "Beauties" of.. Government 182

Train Dispatching by Telegraph, First 299, 339
 Transafrican Telegraph Company, Mr. Rhodes and the... 164
 Transpacific Cable, The 103
 Trees, Profits in Raising (For Telegraph and Railroad)..... 109
 Tunnels to Carry Mail In 184
 Twentieth Century Suggestion —E. L. Bugbee 333
 Typewriter in Telegraph Offices 458
 Typewriter in Telegraph Service, The First 513
 Typewritten Train Orders .. 276½

U

Uncle Sam Should Not Own the Telegraph, Why.—Chas. H. Grosvenor 205
 Underground (Trunk) Telegraph Line (England) ...225, 410
 United Press, F. G. Mason Obtains Judgment Against..... 69
 Up-to-Date Agen and Telegrapher, The—C. E. Hilton... 175
 Useful Man Always in Demand, The 141
 Use of Slanø The..... 397

V

Very Latest, The (Megaphone, H. L. Short.)..... 37

W

War Telegrams Sell High 8
 Weather Service, The Telegraph and the (J. H. Robinson) 455
 Western Union and Pennsylvania Railroad 502, 520
 Western Union Branch Office in the Financial District, The New 499
 Western Union Earnings (To June 30) 272
 Western Union Office at Albany, N. Y., New 220
 Western Union Office at Columbus, O., New 183
 Western Union Telegraph Co., Annual Meeting 440
 Western Union Time Service... 377
 Western Union Quarterly Statement 408
 Wheatstone Transmitter, The Stevens' 292
 When Telegraph Business Was Dull 145
 Who Will Act? (New York Purchasing Loan Association) ... 196
 Widow and the Telephone—A Sympathetic Tale 327
 Wiggins Will Sue Marconi 58
 Williams, J. P., On the Carnegie Proposition 3
 Will of S. F. B. Morse's Widow 207
 Wire Game Once More, The 314
 Wire, Seeing by 101
 Wireless Telegraph Matters, Gen. Greely on 56
 Wireless Telegraph Operators, Hardships of 37

Wireless Telegraphy: 20, 32, 39, 48, 88, 103, 125, 140, 170, 197, 213, 224, 263, 284, 300, 327, 350, 388, 410, 463, 474, 496, 534
 Alaska, in 230
 Alaska, Systems, Bids Opened for 213
 A New Name for 39
 British Government Refuses Licenses to Marconi 125
 Contribution on ("Observer") 171
 Cunard Steamship Co., Adoption by 140
 Does Not Pay in the Hawaiian Islands 103
 Established from a Moving Train 463
 Fessenden's System Tested by the Government 213
 In Place of (Syntograph.).... 48
 International Conference in Berlin 474
 International Conference in Germany accepted by Great Britain 197
 Lake Steamers Equipped With 140
 Largest Induction Coil Installed 284
 Lord Kelvin, on 197
 Marconi Company Incorporated 140
 Marconi Company Sells Rights to American Co. 171
 Marconi Station (New) at Poldhu, Eng. 410
 Not a New Invention (John Gordon Gray) 263
 Postal Telegraph-Cable Co. Establishes a Post at Sagaponack 388
 Sagaponack Station 213
 Sea Station Established East of Cape Cod 224
 Signal Office Opens Negotiations for System in Alaska.. 171
 Slaby-Arco bid for System in Alaska 197
 Slaby-Arco System Adopted by German Navy 140
 The Scope of 32
 To Iceland by 88
 Tower at Highlands 197
 Transmitting Apparatus at Poldhu, Test of 125
 Utilized by Gloucester Fishing Fleet 263
 Wireless Telegraphy, W. H. Preece on 391
 Wireless Telegraphy's Efficiency, An Example of 454
 Women's Morse 96
 Wonderful Speed 481
 Write Marriage Proposals on Telegraph Blanks 535

Y

Yetman, C. E.—A Telegraph Transmitting Device..... 497
 Youngest Operator 14
 Young Men Beginning Business, To.—E. J. Nally 166

1903 ANNOUNCEMENT.

FOR TWENTY YEARS *Telegraph Age* has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. They have been invaluable to the active operator as a practical aid in his daily employment. The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of *Telegraph Age* have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given *Telegraph Age* a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the upbuilding of this large circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check, to:

J. B. TALTAVALL,
THE TELEGRAPH AGE,

253 BROADWAY, - NEW YORK, U. S. A.

TELEGRAPH AGE.

A SEMI-MONTHLY JOURNAL DEVOTED TO TELEGRAPHY.

Single Copies, 10 cts.

ESTABLISHED 1883.

\$1.50 per year.

Vol. XIX—No. 1.

NEW YORK, JANUARY 1, 1902.

Whole No. 447.



NEW STANDARD DRY CELLS.

STANDARD OF THE U. S. NAVY AND THE WORLD.

The price is as low as any; durability, FOUR to ONE over any other make. When you use them once you will want no other. NECKTIE PIN outfit by mail \$1.00.

WILLIAM ROCHE, Inventor and Sole Manfr.,
42 Vesey St., New York.

Put Alexander's Word-Counter

on your machine to-day. You will be a better operator to-morrow. It will save you lots of work and worry, and silently demand a better salary for the improved service you will give.

Price \$3. **JESSE ALEXANDER Co.**, Western Union Bldg, N. Y.

1889.

PARIS EXPOSITION MEDAL FOR
RUBBER INSULATION.



TRADE MARK.

1893.

WORLD'S FAIR MEDAL FOR
RUBBER INSULATION.

THE STANDARD FOR RUBBER INSULATION.
SOLE MANUFACTURERS OF

Okonite Wires, Okonite Tape, Manson Tape, Candee Weatherproof Wires.

Write for prices.

THE OKONITE CO., LTD.

253 Broadway, New York.

WILLARD L. CANDEE, } MANAGERS
H. DURANT CHEEVER, }

GEO. T. MANSON, GEN'L SUPT.
W. H. HODGINS, SECT.

REMINGTON TYPEWRITERS ARE

MANY writing machines break down in their youth, but Remingtons have tough constitutions and, no matter how hard the work they do, they are sure to reach a hale and vigorous old age.



LONG-LIVED

WYCKOFF, SEAMANS & BENEDICT, 327 BROADWAY, NEW YORK

IN CORRESPONDING WITH ADVERTISERS PLEASE MENTION THIS PUBLICATION.

THE WESTERN UNION TELEGRAPH COMPANY

EXECUTIVE OFFICES:

195 BROADWAY, NEW YORK.

THOS. T. ECKERT, President and General Manager.

THE LARGEST TELEGRAPHIC SYSTEM IN EXISTENCE

900,000 MILES OF WIRE. 22,500 OFFICES.

TWO AMERICAN ATLANTIC CABLES

From New York City to Penzance, England, direct. Both cables are duplexed. Connects also with FOUR ANGLO-AMERICAN and one DIRECT UNITED STATES CABLES. Direct communication with GERMANY and FRANCE. DIRECT WIRES to GALVESTON, TEXAS, connecting at that place with the Cables of the MEXICAN, the CENTRAL and SOUTH AMERICAN TELEGRAPH COMPANIES for

ALL POINTS in MEXICO and CENTRAL and SOUTH AMERICA.

DIRECT WIRES and CABLES to HAVANA, CUBA, connecting at that place with the CUBA SUBMARINE and WEST INDIA AND PANAMA TELEGRAPH COMPANIES for

ALL POINTS IN THE WEST INDIES.

Exclusive connection with the Great North-Western Telegraph Company of Canada.

Offices in Great Britain:

252 Gresham House, Old Broad Street, London, E. C.

40 Mark Lane, London, E. C.
21 Royal Exchange, London, E. C.
109 Fenchurch Street, London, E. C.
Eltingham House, Arundel Street, Strand, London, W. C.
2 Northumberland Avenue, London, W. C.
45, Exchange Buildings, Liverpool.
Beckhall Chambers, Baldwin Street, Bristol.

29 Gordon Street, Glasgow.
10 Forster Square, Bradford.
1 Panmure Street, Dundee.
106 George Street, Edinburgh.
Exchange Buildings, Leith.
7 Royal Exchange, Bank Street, Manchester.
1 Side, Newcastle-on-Tyne.

TRADE MARK:
"Chloride Accumulator"

CHLORIDE ACCUMULATORS FOR TELEGRAPH SERVICE.

REGISTERED SEPTEMBER 11, 1894.

"The Electro Motive force of the Storage Battery is more uniform than that of the gravity or any other form of primary battery. This is a very important matter in a fire alarm system."

THE ELECTRIC STORAGE BATTERY COMPANY, Allegheny Ave. and 19th St., Philadelphia, Pa.

SALES OFFICES:

New York, 100 Broadway.
 Boston, 60 State St.
 Chicago, Marquette Bldg.

Baltimore, Equitable Bldg.
 St. Louis, Wainwright Bldg.
 San Francisco, Nevada Block.

Cleveland, New England Bldg.
 Philadelphia, Allegheny Ave. and 19th St.
 Detroit, Michigan Electric Co.

J. H. BUNNELL & CO.

20 PARK PLACE, NEW YORK

OUR NEW FACTORY is now at work and we shall soon have an entire new stock of our latest improved **TELEGRAPH INSTRUMENTS** and other **ELECTRICAL APPLIANCES**, made by **SKILLED LABOR**, of the **BEST MATERIAL**, with the aid of the most improved modern machinery and methods, at prices that surprise.



TRADE MARK.

Have you our No. 18 Catalogue? If not, ask for copy. We send it free on request.

Do you use or want **TELEPHONES**?

Ask about our "77-13" Phones. They are great **TALKERS**.

J. H. BUNNELL & COMPANY, MANUFACTURERS, IMPORTERS AND DEALERS IN
TELEGRAPH, TELEPHONE, RAILWAY AND ELECTRIC LIGHTING SUPPLIES, INSTRUMENTS, BATTERIES, INSULATED WIRES AND LINE EQUIPMENT.

P. O. Box 1286.

20 PARK PLACE, NEW YORK. Formerly 76 Cortlandt St.

Taltavall's Telegraphers of To-day. Descriptive, historical and biographical. 355 pages and 700 engravings of the prominent telegraph people. Price, \$5.00, expressage prepaid. Address J. B. Taltavall, 253 Broadway, New York.

EVERY GOOD OPERATOR

SHOULD HAVE A GOOD WORD COUNTER
 THEY SAVE TIME AND TROUBLE.

INVALUABLE BECAUSE THEY ARE RELIABLE.

They record the exact number of words written upon any writing machine. They are an ornament to any typewriter. Simple and durable. Cannot get out of order. Unlimited counting capacity. Can be instantly reset. Warranted accurate.

Mailed to any Address upon Receipt of \$3.00.

In ordering state what machine you use, as attachments differ. Remit by express or post office money order to

JOHN B. TALTAVALL, The Telegraph Age, 253 Broadway, N. Y.

W. R. OSTRANDER & CO.,

Manufacturers of

Speaking-Tube Goods,

Electric Bells,

Annunciators,

General Electric Supplies,

22 Dey St., New York.

SEND FOR CATALOGUE.

THE TELEGRAPH CHRONICLE

Is the only telegraph newspaper published in England. All who wish to know what is going on in the British Postal Telegraph Service and to keep abreast of the progress of technical improvements in telegraphic apparatus and methods, should subscribe to the

TELEGRAPH CHRONICLE

Published fortnightly at 129 Pepys Road, London, S. E. Subscription, post-free, Five Shillings per Annum. The TELEGRAPH CHRONICLE is the organ of the Postal Telegraph Clerks Association, the most powerful organization of telegraphers in the world.

DEALERS WRITE FOR DISCOUNT. SEND \$1.50 FOR A PAIR OF MY

LINEMEN

3 RIVETS

CLIMBERS

J. DONNELLY, PATENT PENDING

U CAN RE-SPUR THESE. I WILL MAIL 2 SPURS, POST PAID, FOR 40 CTS.

SOLE MAKER **JOHN DONNELLY,**

BOX 379, BRANFORD, CONN. U.S.A.

1902 ANNOUNCEMENT.

FOR MORE THAN EIGHTEEN YEARS TELEGRAPH AGE has represented the great telegraphic interests of this country. During this long period, so eventful in the history and development of telegraphy, this paper has endeavored faithfully to advance the welfare of every individual connected with the telegraph. How well this has been appreciated is attested by the fact that thousands of names are still on its books of those who, having drifted into other callings, never have forgotten their former telegraphic experience, or ceased to cherish the friendships and associations then formed. For telegraphers are clannish, loyal to each other, and, we are pleased to say, eminently so to their single representative paper, and which, let it be said, has ever sought to be loyal to them.

THE DEPARTMENT OF CORRESPONDENCE, so long finding expression in the familiar and chatty pages by which members of the fraternity in all parts of the country are kept constantly and pleasantly informed of all changes and transfers, business and social events, marriages and deaths, occurring within their ranks, has proved to be of abiding interest to thousands everywhere.

THE TECHNICAL ARTICLES, highly instructive in character and conveying practical and much-needed information on every phase of modern telegraphy, have won high commendation because of their intelligence and the broad scope of the subjects brought under discussion. **THEY HAVE BEEN INVALUABLE TO THE ACTIVE OPERATOR AS A PRACTICAL AID IN HIS DAILY EMPLOYMENT.** The series of articles now being contributed by Willis H. Jones, to which attention is especially requested, are alone worth more than the subscription price of the paper. Mr. Jones is a prominent New York wire chief operator. His articles explain, in simple and easily understood language, the duplex, the quadruplex (how to install and balance them), batteries, dynamo machinery, the condenser, galvanometer and electrical testing, switchboard testing, repeaters of all kinds, etc. All sorts of possible combinations that the telegrapher is asked to solve are given painstaking and careful attention.

THE GENERAL SUBJECT OF TELEGRAPHY in its many aspects, its progress and development, in this and other countries, has been so treated as to present a vast fund of information. The bound volumes of TELEGRAPH AGE have come to be regarded as works of reference. They will increase in value as time goes by.

THE PROGRESSIVE CHARACTER of the paper itself is generally recognized, and its influence and high standing in all telegraphic and allied electrical circles is freely acknowledged.

CONDUCTED BY EXPERT TELEGRAPHERS, graduates themselves from the key, their training and sympathies put them in close touch with the conditions and needs of the craft still engaged in receiving and sending the dots and dashes.

THE SUBSTANTIAL ENCOURAGEMENT received in the past has already given TELEGRAPH AGE a wide circulation. And this has steadily grown. Yet the field is constantly expanding. Considering the variety, extent and character of the important matter the paper is now offering in all of its departments, so thoroughly meeting the requirements of up-to-date telegraphic information, technical and general, this journal should be an indispensable factor, not only in every telegraph office in the United States, Canada and Mexico, including those of the railroad, the police-telegraph and fire-alarm systems, but to every individual telegrapher as well. To the up-building of this larger circulation, the accomplishment of which means as much to the subscribers as to the publisher, because affording the guarantee of a still further improved paper, we ask the active co-operation of our friends everywhere.

TELEGRAPH AGE has always sought to exert a helpful influence to the fraternity collectively, and to the telegrapher as an individual. Now in turn, when it has mapped out for its future a larger, fuller and a more broadly comprehensive course, still ever keeping in view the advancement of the telegraphers' best interests, it appeals to its friends, to the members of the craft everywhere, to render the aid which they alone can give to make this subscription effort supremely successful.

THE PERSONAL CONSIDERATION OF TELEGRAPHERS is earnestly called to this statement, and their subscription and those of their office associates are solicited. Will the reader kindly call attention to this matter? A sample copy will be sent free to any address on application.

Address, remitting by express or post-office money order, draft or check,

J. B. TALTAVALL,

THE TELEGRAPH AGE,

253 BROADWAY, - NEW YORK, U. S. A.

Satin Finish

Typewriter Ribbons,
Something new.

Satin Finish

Carbon Paper,
Known everywhere.

Cobweb Carbon

Used once,
Used always.

A. P. LITTLE, Mfr.,

Rochester, N. Y.

Also,

261 Broadway, New York.

161 La Salle St., Chicago.

665 The Bourse, Philadelphia.

413 Wood St., Pittsburgh.

28 Basinghall St., London.

45 Adelaide St., E., Toronto.

Barclay's Paralysis Cure

Strengthens the relaxed cords of the hand,
wrist and arm. Cures Telegraphers' and
other Writers' Paralysis and Cramp of
many years' standing. Stiff joints
caused by accident cured. All
Telegraphers and Writers
should have one.



THIS IS ONE OF MANY TESTIMONIALS NOW ON HAND.

FT. ATKINSON, Wis., July 18, '95.

R. BARCLAY:

Dear Sir:—I commenced using your valuable Exerciser about two months ago, and have received such great benefit from its use that I consider it necessary to write you and say what it has done for me. If I had not used this instrument, I would have been obliged to give up the telegraph service, as I was in such a condition that nearly every one complained of my sending. I can heartily recommend your valuable remedy to all afflicted with paralysis, and if I know of any one in need of it I shall do all I can and persuade them trying it. Yours very truly,

OTTO REHM, Opr. C. & N. W. R'y.
Sent to any address, postage prepaid, together with full instructions, \$3.15. Address
ROBERT BARCLAY, Green Bay, Wis.



HUDSON'S WORD REGISTER

A simple, accurate device for counting the words written upon the typewriter. It is easily read, instantly set, and covers both message and special work. Price by mail, with full directions for attaching and operating, \$3.00. State what machine you use. Circular free. Address

GEO. E. HUDSON,
Sheridanville, Pa.

BLOOD POISON

Primary, Secondary or Tertiary permanently cured in 15 to 35 days. We eliminate all poison from the system, so that there can never be a return of the disease in any form. Parties can be treated at home as well as here (for the same price and under the same guarantee), but with those who prefer to come here, we will contract to cure them or refund all money and pay entire expenses of coming, railroad fare and hotel bills.

OUR MAGIC REMEDY has been many years in use and never failed to cure. Since the history of medicine a true specific for Blood Poison has been sought for but never found, until our Magic Cyphillene was discovered. This disease has always baffled the skill of the most eminent physicians. We solicit the most obstinate cases and challenge the world for a case we cannot cure.

\$500,000 CAPITAL

behind our unconditional guarantee. ABSOLUTE PROOFS sent sealed on application. 100-PAGE BOOK FREE.

HAVE YOU Sore Throat, Pimples, Copper Colored Spots, Aches, Old Sores, Ulcers in mouth, Hair Falling, write
COOK REMEDY CO.,
1632 Masonic Temple, Chicago, Ill.

COOK REMEDY CO.

STYLUS! STYLUS! STYLUS!

Use the Rogers Stylus, if you want the best; for thirty years we have been making them, and they have a world-wide reputation.

AGATE STYLUS—40 Varieties.

With red, white, blue, green, moss, crystal, blood-stone, tricolorite and other fine points; mounted on ebony, mahogany, pearl, bone, gutta-percha, rubber, cedar and pen handles; with nickel-plated, gold-plated and engraved ferrules, some with sliding, others with reversible, points. Price, 20 cents to \$5.00 each. On exhibition, 10,000 agate points, agate pens, rulers, paper weights, paper cutters, all-agate stylus, agate point watch charms, etc. Many of them making handsome presents, souvenirs, etc. Send for price list, with full-size cuts.

STEEL, BONE AND GLASS STYLUS

20 Varieties

A large assortment, in all kinds of plain and fancy handles. Price, 10 cents to \$1.00. Also music and writing stylus for the Mimeograph and other duplicating devices.

RELIABLE GOODS. ESTABLISHED 1863.

Rogers Manifold and Carbon Paper Co.,
75 Maiden Lane, New York.

"The Standard Work
on Telegraphy."

AMERICAN TELEGRAPHY:

SYSTEMS,
APPARATUS,
OPERATION.

450 Diagrams, 575 Pages, 34 Chapters.

By WILLIAM MAVER, Jr.

Bound in Cloth, - - - - \$3.50

Sent, express charges prepaid, to any part
of the world upon receipt of price.

J. B. TALTAVAL, Jr.
The Telegraph Age,
253 Broadway, NEW YORK.

PRICES REDUCED YOUR LAST CHANCE



DON'T MISS IT.
\$4.00 "OLD RELIABLE"
VAPOR BATH CABINET
Reduced
To **\$2.25**

Complete with heater and directions. Cabinet rubber lined, good material. Better than others ask \$4.00 for. Folds smallest space.



THE FAMOUS
\$5. Square Quaker
Vapor Bath Cabinet,
Style 1903. Half mil-
lion sold at \$5.00.
REDUCED TO

\$3.50

Genuine \$5.00 Quaker Cabinet only \$3.50.

Complete with best heater, medicine and vaporizing pan, and Prof. Gering's 100-page \$2.00 Health and Beauty Book, giving directions how to take Turkish, Russian, Hot Air, Steam and Vapor Baths at home for 3c each, also how to treat diseases. This Cabinet latest design, best quality materials, rubber lined, steel frame, roomy, folds flat, is entered by a door. Most convenient. Sent on 30-days' trial. Guaranteed. Better than others ask \$7.50 for.

\$10. Double "QUAKER" CABINET
Walled



(STYLE 1904.) WRITE FOR CATALOGUE

REDUCED TO **\$6.10**

Same as the \$3.50 Cabinet, described above except has double walls. Lined inside and out with rubber cloth; black ebony finish. Never soils; better than others ask \$12.50 for. Sent complete, ready for use with best heater, medicine and vaporizing pan, also Prof. Gering's 100-page, guide book to Health & Beauty.

VAPOR BATHS

Benefit everybody. Better than water. Now inexpensive. Recommended by physicians, proven cure for Rheumatism, Bad Colds, Fevers, La Grippe, Pneumonia, Pains, Liver, Kidney, Skin and Blood Diseases. Purifies the blood, makes clear skin, beautiful complexion, strong nerves, refreshing sleep, invaluable for children and ailments peculiar to women. These Special Prices are less than half others would ask you. Don't wait and miss them. \$1. Face and Head STEAMING ATTACHMENT, reduced to 65c. Good for Beautifying the skin, complexion, curing Catarrh, Asthma, Bronchitis and Throat Troubles.

SEND NO MONEY. Simply your name and full address and let us send you our complete Catalogue and special offers FREE, or better still, select the Cabinet you wish, send \$1.00 and we will send it C.O.D. subject to examination. Examine it at your express office and if just as described, perfectly satisfactory, and the cheapest good Cabinet you ever saw, pay express agent the balance and express charges. If you remit us full price, goods will be quickly shipped, guaranteed as described, or your money refunded, and you save return express charges. Better order today. Don't wait, then complain when prices advance. Write for Booklet anyway.

WHO WE ARE. Almost everybody knows of us. We've been in business eleven years. Capital \$100,000.00. Oldest and largest makers of Bath Cabinets in the world. References: publishers of this paper, Dun's Com'l Agency, Fifth National Bank. Write quick.

New Plans, New Prices to Agents, Salesmen and Managers. Write quick for offer. Wonderful seller at Cut prices. Agents making Big incomes. Plenty of good territory.

WORLD MFG CO., 165 World Bldg., Cincinnati, O.

Mayer's American Telegraphy. A thorough Encyclopedia of the Telegraph. Over 600 pages, 450 illustrations. Price, \$3.50, express charges prepaid. Address J. B. Taltavall, 253 Broadway, New York.

Any electrical or telegraph book published for sale by Telegraph Age, 253 Broadway, New York.

The New Century

grows in popularity
because of its

A 1
work and service.



Let us send you an illustrated pamphlet giving full details of its equipment.

AMERICAN WRITING MACHINE COMPANY,
302 Broadway, New York.

MARSHALL'S ELECTRICAL CONDENSERS.



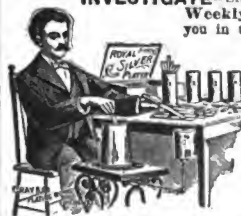
MULTIPLE SERIES STANDARD CONDENSER.
STANDARD CONDENSERS a Specialty.
Condensers for Telegraph, Telephone, Electric Light and Experimental purposes. These condensers are used in all telegraph offices in America where standard and ordinary condensers are required. Send for catalogue.
Address WM. MARSHALL,
700 Lexington Ave., near 57th St., New York.

Mention
TELEGRAPH AGE
when communicating
with advertisers.

Any electrical or telegraph book published for sale by Telegraph Age, 253 Broadway, New York.

A NEW MONEY-MAKING BUSINESS

All you may have guessed about the plating business may be wrong—**COSTS NOTHING TO INVESTIGATE**—Simply write for our proposition—do it to-day. Would \$20.00 to \$35.00 and Expenses



Weekly at Home or Travelling Interest you! Let us start you in the Gold, Silver, Nickel and Metal Plating Business, doing plating, selling or appointing agents for Prof. Gray's New Machines for doing Gold, Silver, Nickel and Metal Plating on Watches, Jewelry, Tableware, Bicycles, all metal goods. We've done plating for years. **Will TEACH YOU**, furnish recipes, formulas and trade secrets **FREE**. We make outfits all sizes, send them out complete, work on same principle that Rogers Bros. do their best plating. **THE ROYAL, PROF. GRAY'S New Dipping Process**. Latest method. Goods dipped in melted metal taken out instantly with fine brilliant plate, ready to deliver. Thick plate every time, guaranteed to wear 5 to 10 years. A boy plates 200 to 300 pieces tableware daily.



No electricity, dynamo or polishing necessary. **TRENDENOUS DEMAND FOR RE-PLATING**. Every person, family, hotel, office or factory have goods to be plated. **YOU WON'T NEED TO CANVASS** by our plan. You can hire boys cheap to do your plating the same as we. This business is honest and legitimate. **PROFITS ENORMOUS**. Customers delighted. We're old established firm. Capital \$100,000. Largest m'f'rs. Know what's required. Customers have benefit of our experience. We guarantee all our goods. **LET US START YOU**. Don't delay a single day. **Catalogue FREE**. **WRITE TODAY** for new Proposition, Samples, etc., so we can start you at once. **Gray & Co., Plating Works, 43 Miami Bldg., Cincinnati, O.**

Thom & Jones's Telegraphic Connections. 59 pages, illustrated by 20 plates, with circuits distinguished by various colors. Price, \$1.50, postage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Pope's Modern Practice of the Electric Telegraph. A handbook for operators. 223 pages, fully illustrated. Price, \$1.50, postage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Secret Sounders FOR TELEGRAPH WORK.

PRICE, \$5.00.

Invaluable in newspaper and broker offices. Easily adjusted, strong, durable and simple.

ADDRESS,

JOHN B. TALTAVALL,
THE TELEGRAPH AGE, 253 B'way, N. Y.

Standard Underground Cable Co., Wires, Cables, Conduits.



RAILWAY, ELECTRIC LIGHT, TELEPHONE, TELEGRAPH, For Aerial, Underground and Submarine Use.

NEW YORK. PHILADELPHIA. CHICAGO. PITTSBURGH. BOSTON. SAN FRANCISCO.

THE TELEGRAPH AGE.

No. 1.

NEW YORK, JANUARY 1, 1902.

VOL. XIX.

CONTENTS.

Some Points on Electricity—The Equipment of a Modern Telegraph Office.....	1
Business Notice. The Carnegie Proposition.....	3
Telegraphers, Rhymsters and Poets. Telegraph Breakdown in England.....	4
A Case for Inquiry in the British Post Office.....	5
Line Construction in the Klondike. A Mexican Cable.....	6
The First Telegraph Line in Texas.....	7
A Quick Recognition. War Telegrams Sell High.....	8
Editorial. The Pension Fund Proposition.....	9
Marconi's Motto is, "Time is Everything." A Testimonial to the Late M. H. Redding.....	10
Sidetracked.....	11
Lawful to Send Racing News.....	12
A Prominent English Telegrapher. Telegraph Poles Damaged by Woodpeckers.....	13
General Mention. New York Visitors. Wants Uncle Sam to Buy the Telegraph. Magnetic Club.....	14
Death of Charles W. Lundy. Obituary Notes.....	15
Cleveland Notes; Buffalo, Western Union; St. Louis, Western Union; New York, Western Union.....	16
New York, Postal; Toledo, Western Union; Seattle, Western Union; Chicago, Western Union.....	17
Chicago, Postal; Montreal, Great North Western; Toronto, Great North Western.....	18
Boston, Western Union; Cincinnati Notes; Philadelphia, Western Union.....	19
Philadelphia, Postal; Pittsburg, Postal; Kansas City, Western Union; Waco, Western Union; Marconi Receives a Signal Across the Ocean.....	20
Personal Mention.....	21
To Push the Pacific Cable. Cuban Telegraph Cable Co. Incorporated.....	22

SOME POINTS ON ELECTRICITY.

The Equipment of a Modern Telegraph Office.

(Continued.)

THE WIRING AND ARRANGEMENT OF APPARATUS.

BY WILLIS H. JONES.

[In a few months hence this series, together with the most valuable of the articles appertaining

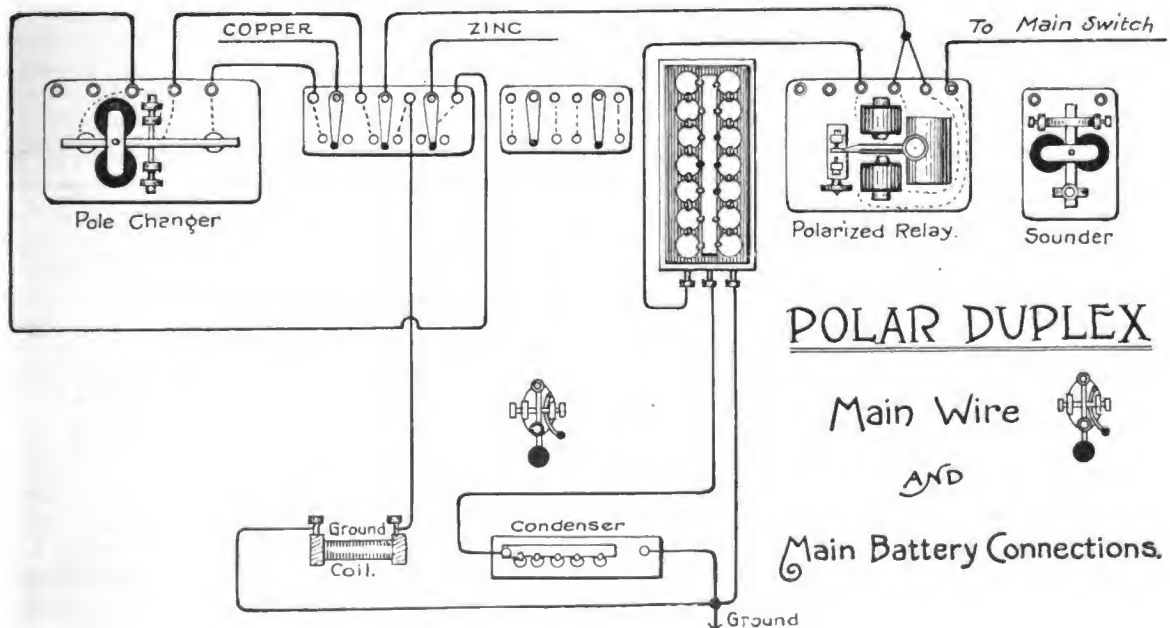
to the duplex, the quadruplex, storage battery and other telegraph matters, which have appeared in this journal during the past three years under the caption of "Some Points on Electricity," will be published, and the book substituted for "Pocket Editions of Diagrams," by Willis H. Jones. Those desiring a copy of the new book should send in their names at once.—Editor.]

Nothing causes more confusion and delay to the traffic in a telegraph office than a guidelss search for "trouble" in a set of instruments which has been wired without conformity to any prearranged plan. In a small office where a few instruments are installed by one man he may possibly remember just where each connection is made, but in large offices the chief operators in charge are not usually the men who actually did the wiring, hence a systematic method of arranging the apparatus and connections is not only advisable, but really necessary. Each separate apparatus should occupy an identical location on or under the desks. The manner in which single line relays and sounders are arranged has already been shown.

We will now proceed to arrange the multiplex apparatus according to the latest and most approved method.

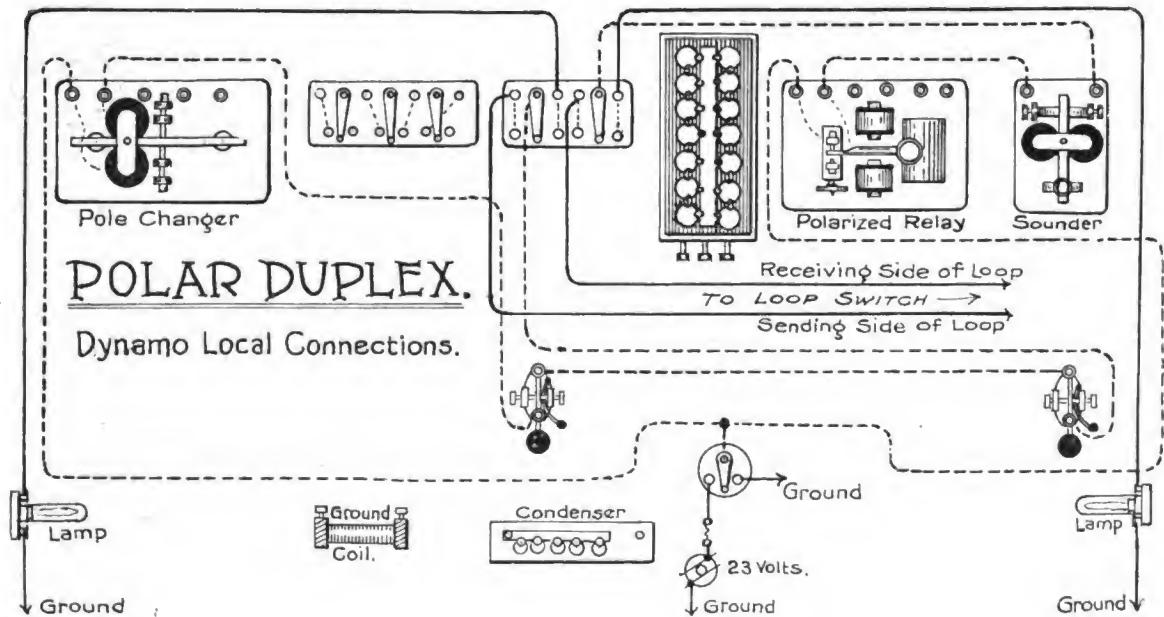
The first and second diagrams show the actual binding post connections of a polar duplex operated by a dynamo current, with every instrument, switch, wire and other accessory in their proper position on the desk.

For the purpose of preventing confusion in



tracing the desk wires from one point to another, we have omitted the local connections in the first cut and the main wires in the second. The two cuts make an ideal "blue print" for linemen, and

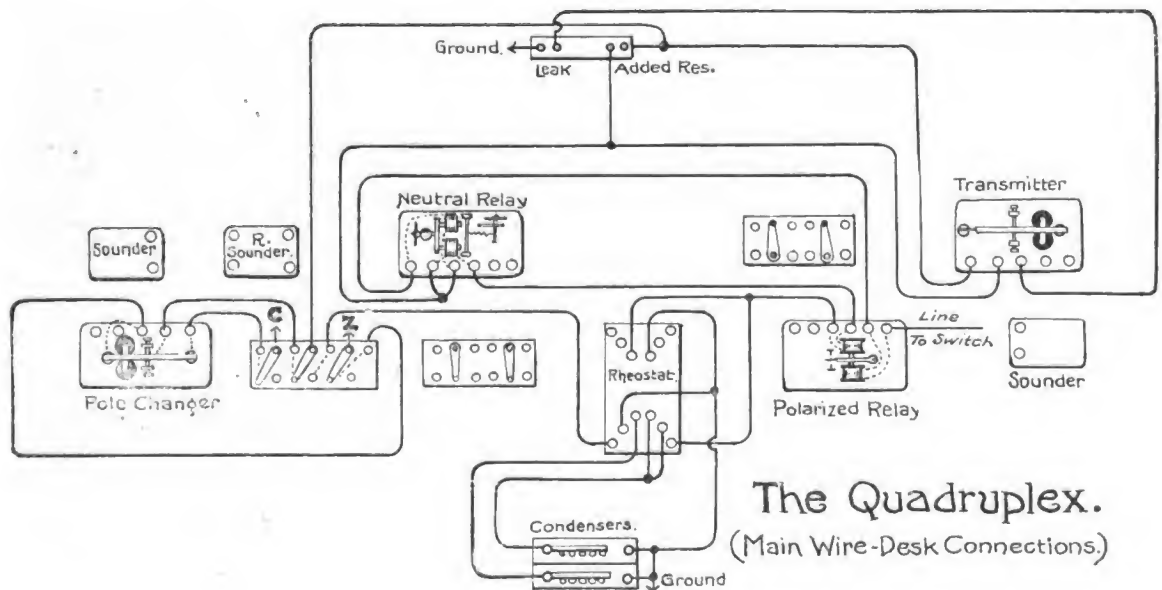
The resistance of the ground coil for duplex apparatus should be just the same as that of the main line battery lamps at the home station, usually two ohms per volt employed. The third and fourth



anyone with ordinary intelligence should be able to set up a duplex without other suggestions than are contained therein.

All the apparatus shown are placed on top of

cuts in like manner show the main wire and local desk connections of the quadruplex apparatus separately. The local connections are practically the same as those of the duplex, with the excep-



the desk except the lamp resistance, the ground coil, condensers, and the round base, three-point battery switch, which should be placed at convenient points underneath the table.

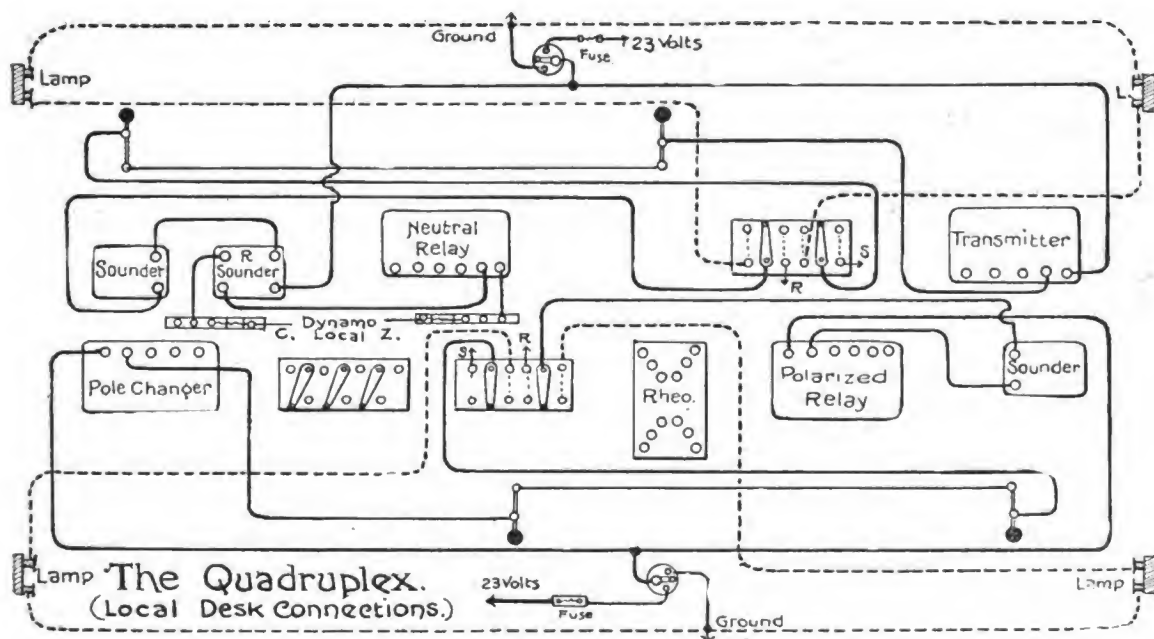
tion of what is necessary to add a repeating sounder to the neutral side. As the diagrams speak for themselves, there is but little further information necessary.

Where resonators with flexible cords are connected to binding posts screwed into the top of the desk, as is usually the case, the two posts should be placed near the front partition, one behind the other, as viewed by the operator seated in his chair, and not side by side. They are thus arranged in order that the circular metal base of the resonator stand cannot possibly touch the two at once and thereby "cut out" the sounder.

The resistance of the ground coil for quadruplex apparatus should always be exactly 600 ohms, where the dynamo arrangement of "leak box" and "added resistance" obtains, regardless of the elec-

the profession, of which he was once a member, for all time. My plan, in brief, is simply to return to an old time charity—buy a worthy workman his tools.

Throughout the country to-day it is almost absolutely necessary for an operator to provide himself with a typewriter, and if he be of forethought, a key which will prevent lost grip and telegrapher's paralysis, ailments which, in more or less degree and sooner or later, attack every operator. These instruments are in the open market. Typewriters of all makes to relieve the penman from writer's cramp, and the Twentieth Century key, which will



tromotive force or length of the circuit, because the joint resistance of those coils offer exactly 600 ohms resistance to the incoming current with our transmitter open, and we must maintain that value when we "ground" for the distant station, so that when we "cut in" again we will not add to or detract from the value of his line balance.

(To be continued.)

Business Notice.

"I see you've got an operator at Brownville now that can send, Mr. Train Dispatcher." "Oh, no; it's the same old operator—he bought a 20th Century Telegraph Key!" Address Foote Pierson & Co., 82-84 Fulton street, New York.

The Carnegie Proposition.

Editor TELEGRAPH AGE:

Relative to the recent articles in your journal asking suggestions as to the best manner in which Mr. Andrew Carnegie could aid the telegraphists of the United States, permit me to suggest a plan, which, in my humble opinion, were it put into practice, would endear that great philanthropist to

enable a victim of lost grip to transmit dots and dashes, which he could not do on the regulation key, and which will prevent paralysis. But these instruments cost money; the companies will not buy them, and while many operators purchase them on the instalment plan at the highest figure, many are not able to buy them at all and struggle along as best they may.

It has been said that the most noble form of charity is to help a man to help himself. What better plan than this—buy a worthy workman his tools.

I am sure that if Mr. Carnegie would divert a sum of money to this purpose the results would be most gratifying. The purchases could be made under the supervision of local managers and the individual benefited would be in a position to at once demonstrate the value of the gift.

Very respectfully,

JAMES P. WILLIAMS.

New York, December 23, 1901.

Shade of Benj. Franklin to Signor Marconi: "Hello, Marc., I believe I've seen that kite arrangement of yours before."

Telegraphers, Rhymsters and Poets.

A correspondent, who was evidently a reader of my versified narrative of "Pat and the Anarchists," has written me over a *nom de telegraphique* (X), and asks if I can explain why so many telegraphers are moved to write rhymes. "Scarcely a telegraph office," he adds, "but shelters a poet. How do you account for it?" He (or she) also suggests that I deal with the subject in *TELEGRAPH AGE*.

I am not an authority on such matters—let that be distinctly understood—but since I received X's letter I have turned the query over in my mind, and I think it reasonably can be claimed that the environment of a telegrapher is conducive to rhythmic outpourings, or even poetry in its truer sense. Between these two classes of writing there is a wide difference. The poet of occasion and the bard of inspiration are not in the same class. "But (as Kipling says) that's another story," and not necessary to the development of my theory.

Rhythm is abundant all about the telegrapher. It permeates the atmosphere of his daily labor. He hears it in the hum of the telegraph wires after his day's labor is done. It appertains to the "tools of his trade," so to speak.

To the uninitiated the ticking of a single telegraph instrument or the clatter of a number of them in unison is discord—noise, pure and simple. But this sound falls upon the trained ear of the telegrapher in an altogether different manner. The combination of dots, dashes and spaces blend together in a harmony which varies in degree, according to the quality of expertness attained and exhibited by the "sender." "Good Morse" is musical even. It is soothing to the nerves. There is a rhythm and a metrical exactness about it that lends to it an almost poetical grace. It is a truism that the man or woman with "an ear for music" makes the best telegrapher; and as music and rhythm and poetry are closely allied, there is nothing surprising to my mind in the fact that among the thousands of expert telegraphers all over the country, there should be a rather large percentage of those whose sense of rhythm finds expression in verse-making.

But just as there are poor musicians and poor telegraphers, so, too, there are poor verse-makers and poets, even though they be telegraphers as well. There are rhymes without rhythm, and so-called poems without many, if any, traces of poetry, just as there is "bad Morse" of the jerky and unspaced order. But it is sometimes hard to make a poor telegrapher, a poor musician or a poor verse-maker realize the fact that he offends. In each case the "poor one" has probably missed his calling. But how few of them admit it!

Anybody can become a "plug," just as anyone can become a nuisance to his neighbor by thumping a piano, or just as anyone can make jerky, inelegant sentences rhyme. But the good operator, the good musician and the good rhymster must have some inward qualities behind the mechanical touch, even though it be deft, as applied to the telegraph key, a musical instrument, or the pen.

So much for the purely rhythmical aspect of my theory. And now for the poetical aspect.

The poet of nature goes to wind-tossed forests; to fragrant flowers, diffusing their perfume on the summer's balmy breeze; he goes to the babbling brooks; to the music of the song birds; to—in short, all of the idyllic conditions which move his heart to inspiration. There is the poet of bloody war, the poet of peace and civilization, the poet of the heroic and of the pastoral; of Love (and his name is legion) and of hate (for some poets are spiteful).

As Byron satirically put it:

"Behold! in various throngs the scribbling crew
For notice eager, pass in long review."

And all these have their theme.

Then why not a Poet of the Telegraph—not a mere rhymmer, or writer of jingling verse, but a *real* poet?

The inspiration lies ready at hand, and it is magnificent, mysterious and awe-inspiring.

Let some telegrapher arise and do it justice.

Consider the subtle force that produces the rhythmic ticking of dots and dashes; consider, too, the continents traversed in the twinkling of an eye by the same subtle agency, as it carries across their broad stretches the messages of mankind. Consider the oceans likewise spanned. Consider time annihilated. Or imagine—as a poet has the right to imagine—all the clicking instruments in the universe blended into a thundering chorus for the purpose of acclaiming the great deeds which the electric telegraph has done for humanity. And, finally, consider the marvelous mystery which surrounds the vital and potent electric flash, whether it be harnessed for the purposes of mankind, or unloosed, high in the heavens, to hurl at affrighted Earth the thunderbolts of Jove.

Let X dwell upon this and he must surely ask, as I have asked, "Why not a Poet of the Telegraph, or a dozen of them?"

And let X no longer wonder that telegraphers make rhymes, feel constrained to mount Pegasus, or plume their wings to poetic flights—even if editors, at times, are unsympathetic and refuse to publish their verses. BRENTON A. MACNAB.

Telegraph Breakdown in England.

The effect of the recent big storm in England, which practically severed all telegraphic communication between the southern and northern portions of that country, has been to revive agitation for the completion of an underground service to all the great centers. The great advantages of the underground wires to Birmingham were never more clearly demonstrated, as that city was the only one in full communication with London for two days.

It is estimated that the storm cost the country \$5,000,000.

It is well to think well; it is divine to act well.—Horace Mann.

No up-to-date telegrapher can afford to be without *TELEGRAPH AGE*. Send for a sample copy.

A Case for Inquiry in the British Post Office.

The September number of the Westminster Review (England) contains the following interesting article by Charles H. Garland, one of the foremost telegraph writers and expert operators in England:

The traveler in Rome is met with the following aphoristic comment on the absence of marble in the Coliseum: "What the Barbarians left the Barberinis took." It may be some distant echo of this aphorism which has led to the current saying in the post office on the causes of mortality among the employees. The generalized experience is summed up in the following grim sentence: "What consumption leaves the madhouse takes." This is perhaps not literally true, but it is a clear popular expression of the prevailing impression among the employees of the lower grades of the indoor postal service. Among the large bodies of sorters and telegraphers there is an ineradicable belief that consumption claims an abnormal tribute of lives, and among the telegraphers there is an equally deeply-rooted belief that their work is productive of mental disease in all its forms, from the more severe and pronounced types which find treatment in an asylum to those less serious cases which result in an amiable softness or express themselves in abnormal craving for alcohol. Nor are these beliefs confined to English postal employees alone. They are equally prevalent in the Continental countries. At the International Congress of Telegraphers held in Como in June, 1899, this became especially obvious. Delegates from Italy, France, England, Switzerland, and Austria made frequent references to the widespread belief, and their references were of such a character as to point to an underlying assumption of this as an incontrovertible fact.

Up to the present the science of statistics has furnished no complete data by which these beliefs can be accurately tested. But it nevertheless remains a most remarkable fact that such a universal belief should exist, and it would be still more remarkable should it turn out to be unwarranted. The electrical condition of the atmosphere is known to affect abnormally nervous persons, hysterical subjects and the like, producing changes which result in depression or excitement. But no detailed investigation exists upon the influence of an electrically charged atmosphere upon normal persons. Dr. Damian, a French scientist, and Dr. Charles Feré, a physician of the Bicêtre Hospital, have both separately studied the subject of the influence of the electrical condition of the surrounding air upon their subjects, and there is every reason to believe that very profound nervous effects result from changes in electrical tension. Dr. Arlidge, who died recently, collected together a considerable mass of information and published it in a treatise on the "Disease of Occupations." His book became a classic, and undoubtedly led to the reduction of the mortality of most dangerous trades. In a letter dated April 9, 1896, he tells me: "I had hoped to get some returns of the longevity, the health, and prevalent

maladies, especially of those constantly engaged in connection with electrical agencies and instruments. . . . I wrote to the officers of the Central Office, and was curtly told that it was contrary to the rule of the department to give information respecting the employees. Why it should be so I have never comprehended."

Far be it from me to assert that the electrically charged atmosphere is the chief or only cause of the insanity of telegraphers. I believe it to rest rather in other conditions of his work, chief of which is its monotony. I was discussing this question one day with a celebrated French electrician, and he said to me, "Imagine a man repeatedly writing or sending such phrases as 'Expect me at 6.30,' 'Shall be late to-night,' hundreds of times per day for years on end! Is it not enough to drive any man mad?" This is a very fair description of the mass of the telegraphers' work, and I am inclined to agree with the French expert.

Despite the refusal of official evidence on so important a subject it is still possible to get some figures, and these point wholly to the justification of the belief of the employees. If better statistics prove the contrary, which I doubt, it is obviously the duty of the postal authorities to produce them, and thus kill this bogey of the telegraph operator. An endeavor was made to kill the consumption bogey, which failed, and it remains incontrovertibly established that both in England and France hundreds of postal employees die of preventible pulmonary disease.*

Let us look at the justificatory evidence for this widespread belief of the telegraphers. In 1885 and 1886 particulars were given in the post office estimates of the causes of retirement among telegraphers. They showed in 1885 that of a total of thirty-two pensions granted twenty, or 62.5 per cent., were on account of nervous disease. The following year the same heavy percentage was shown. There were in 1886 thirty-four cases of pensions, of which eighteen, or 52.9 per cent., were of nervous complaints. The remainder were mainly respiratory complaints. These figures immediately attracted the attention of the medical papers in England and America, the *Lancet* being especially strong in its comments. The postal department shielded itself by discontinuing the publication of the details! But no inquiry was made, such as M. Millerand has recently instituted concerning consumption and its ravages among the French postal employees.

The postal service has an insurance association known by an official misnomer as the United Kingdom Postal and Telegraph Service Benevolent Association. It is in every respect an insurance association, and as all postal lives are carefully selected lives, in consequence of the medical entry examinations, all members of this society are selected lives. Pick up its reports haphazard and we immediately see the justification for the belief that consumption and the madhouse take all

*Vide my paper, "Consumption in the Post Office," read before the British Congress on Tuberculosis on July 24, 1901.

the lives. I pick up the report for 1895. Forty-seven telegraph deaths are recorded, of which nine are from nervous disease and 32 from pulmonary disease. The last report for 1900 shows a total of thirty-seven telegraph deaths, of which two are suicides, six from nervous disease, and nineteen from respiratory disease.

Such a condition is indicated each year by the reports of the society. The official figures, published in the Postmaster-General's report for the last few years, confirm the unofficial figures for consumption. It certainly behooves the postal department to publish well-classified and detailed statistics on the nervous and other complaints of telegraphers.—London Telegraph Chronicle.

Line Construction in the Klondike.

BY GORDON SM. TH.

When the linemen who are looking it up locate "the trouble" on the Klondike telegraph line it is not unlikely that it will be found that somewhere up in the north on some out of the way Indian rancherie they will find a piece cut from the wire which the untutored Siwash needed to mend his fence, or make a guy line for a tottering totem. The Indian does not take kindly to "the medicine wire" which has been stretched over his illahees in the forests of the north. When the line was being built the construction parties had several experiences of this antipathy, and the shocks administered to those who clutched the strange medicine wire which went from pole to pole did not increase their liking.

It was soon after they started from Telegraph Creek that the telegraph men first encountered the Siwash in numbers opposed to the line. They were about twelve miles out from the Stikine head stringing the wire through the village of the Tahltans there, when the Indians crowded around them and tried to prevent the stringing of the wire. Numbers clutched the wire as it lay on the ground and tugged it from the linemen on the poles. They could not be made to let go, until one of the operators started the current along the wire—and then the wire became known as "the medicine wire." The Indians dropped it with a howl, and there was a great "wa-wa." They could not understand the strange properties of this wire, and it looked as though there would be trouble when the construction superintendents explained through an interpreter what the line was for. Then some of the Indians were induced to take light shocks, and gradually a knowledge of the first rudiments of electricity came to the people of Tahltan, and one man, who could stand the thrills of the current longer than his fellows earned renown as a shaman. Such are the superstitions of the Indians.

At New Kitsclass on the Skeena river where the wire was strung over the village of some of the Skeena river Indians there was a great to do. The Indians tore the wire down, stamped on it, and threatened that as soon as their chief came home from the Naas where he was fishing they would soon make short work of the wire. The line was

strung over the totems of the Siwash graveyard, and this was the main grievance, this and the superstitious dread of the wire which had made one of the barefooted ones jump when he suddenly trod upon it as it lay "alive" on the ground.

When the superintendents and the construction men continued to carry on the work and strung the line over the illahees on the Skeena's banks the Indians formed in a circle and held a great pow-wow, at the end of which they ran in a body to the line intending to demolish it there and then, but a current being placed on the wire, there were yells and shrieks as soon as they grasped it—and the linemen prevailed.

At Kitgegalum on the Skeena a potlatch was in progress when the linemen reached the village with the wire, the occasion of jollity being the raising of a new totem. The Indians were dancing when the men arrived with the wire, and the Indian curiosity overcame the love of ceremony. The potlatch was abandoned to protest against the starne wire being spread from post to post. The missionary resident there satisfactorily explained the workings of the wire to the Indians and trouble was averted there. At a number of rancheries there were objections by the Indians to "the medicine wire," and there were incidents galore where the shock which followed contact with the wire brought yells of terror and wonderment from the Indians.

Up on the line from Telegraph Creek the Indians looted two of the store cabins of the telegraph men and including in the stolen goods, which included flour and provisions of all kinds, was a telegraph instrument which was perhaps taken to set a new medicine man up in business to foster superstition among his fellows.

Several traces of the old Western Union wire built in days long ago were discovered by the line builders, and six miles south of Iskoot summit the line builders went right through the old company's right of way. Traces of the old wire were found on many Indian fences and many pieces which had been carried away by the Indians for various purposes were found.—Seattle Times.

A Mexican Cable.

Consul Canada, of Vera Cruz, Mexico, reports that the Mexican Government has contracted with a New York cable manufacturing concern for a submarine cable to be laid between Vera Cruz, Frontera, and Campeche. The cable is to be 472 nautical miles long. It is to be made of nine copper wires, protected by sixteen galvanized iron wires for the deep sea and eighteen additional steel wires for the coast. The manufacture of the cable will be under the supervision of the Mexican Government. The company furnishing the cable is to receive for the work \$600,000 gold, of which \$283,000 is to be paid when the cable is placed in service and the balance in two and four months thereafter. The cable must be ready for service on April 2, 1902.

You can't afford to be without TELEGRAPH AGE.

The First Telegraph Lines in Texas.

D. P. Shepherd, of Houston, Texas, contributes the following interesting recollections of the events incident to the first establishment of telegraph service in the Lone Star State in ante-bellum days:

The first telegraph line in Texas, built chiefly with Galveston and Houston capital, was from Galveston through the broad prairie, without reference to any road, railroad or other, as there was none, to Houston. Thence by wagon road to Huntsville, thence to Palestine, Rusk, Henderson, Marshall and Shreveport; thence, I think, via Alexandria, crossing the Mississippi at Natchez, there connecting with the primitive system in operation east of that great waterway.

The chief actors in this work were T. C. H. Smith, a telegrapher of that day of prominence; C. A. Burton, a long time engineer, conductor and superintendent on the Houston and Texas Central Railway before and after the war, and afterward superintendent of the Texas and New Orleans road; Mr. L. K. Preston, an old ante-bellum citizen of Houston, and, I think, the venerable city treasurer of Houston was also connected with this work. He was a telegrapher in his native country, Hungary, too long ago to talk about.

To support a telegraph line plenty of people and consequent large business centers are essential, but this line, 600 or 700 miles long, running through a wilderness, with stations in comparative villages, had nothing to support it but its frail sap poles, and for want of a little stimulating financial influence the wire went down of its own dead weight in quite a short time. Few dispatches reached their eastern destination from Galveston and Houston over this line.

In 1859 the lamented E. H. Cushing, proprietor of the Houston Telegraph (newspaper); Col. A. M. Gentry, who built the Texas and New Orleans railroad from Houston to Orange; Dr. I. S. Roberts, who first projected the Western Narrow Gauge road to what is now Sealy, west of the Brazos, and other citizens of Houston, and, if I mistake not, also The Galveston News, organized a new company with C. C. Clute, a practical telegrapher, to execute their will and resuscitated, as it were, that part of the line between Galveston and Houston, by raking together the scattered fragments of the defunct line of 1853 and patched up a frail thing that answered fairly well, all things considered, the purposes of a telegraph line between the then two most important commercial points in the state.

This line, being only fifty miles long and otherwise favorably situated, "did well," financially speaking. It continued to do good service until the close of the war, at which time Mr. Davis—I regret I have forgotten his initials—was its superintendent. Mr. Clark and Messrs. E. and Mose Raphael, now prosperous and prominent men of this city, were among its operators.

Some time during the war the company extended its line east over the Texas and New Orleans railroad to Beaumont, 80 miles from Houston, with some of the old style three-ply black wire. This portion of the line distinguished itself

by doing very inefficient service. Constructed of poor material and in a very cheap manner, and like our line of 1853, having little or no business to stiffen its backbone, it soon crumbled. The objective point of this line was to New Iberia, La., where it was to connect with a line built in 1861-62 by your humble servant for the New Orleans, Orange and Great Western Railroad Company and for the military authorities at New Orleans to aid in the defense of that city.

I would fain avoid referring to "the writer" myself so frequently, but there is no other way out of it by the nature of things. In 1863 I had my headquarters at Monroe, La., whither I had been dispatched by General Superintendent Van Horne of the Southwestern Telegraph Company in contemplation of being cut off by the impending blockade of Vicksburg by the federal fleet. Much of my time was within the sound of "Whistling Dick" and the deep-mouthed, thundering voice of other heavy, booming artillery at that military strong-point. Mr. L. C. Baker, superintendent of the Arkansas State Telegraph Company, with headquarters at Little Rock, began to understand simultaneously with myself that a dignified, if possible, retreat out of Arkansas and Louisiana would have to be undertaken without delay.

My orders were when I was sent to the trans-Mississippi to push the extension of the southwestern lines to Camden, Ark., in co-operation with the military. Failing in this by reason of natural or other obstacles I was to push the extension toward Shreveport and into Texas.

Texas was a much coveted objective point by Mr. Baker and his company. So that when the retreat began it was "on to Shreveport," and as our late honored superintendent, Mr. Baker, was more fleet of foot and perhaps worse scared, he got the start out of Arkansas ahead of me and was the first to land at the goal.

When the retreat began both companies, with the indispensable aid of the Confederate military, had to pull down, reel up and haul on wagons the wire from those parts into Texas. The extension from Shreveport, the headquarters of Gen. E. Kirby Smith, commander of the trans-Mississippi department, was to the most important point to be reached, that is, the headquarters of the district commander, Gen. J. B. Magruder, and afterward Gen. J. G. Walker. Neither company had wire enough to span the entire distance. Mr. Baker having won the go, started his line at Shreveport and ran to Crockett via Marshall, Henderson and Rusk. The Southwestern company, beginning at Crockett, ran to Huntsville and thence to Navasota, where it reached the railroad, thence on that road to Houston. Many hardships and difficulties attended this work, as it followed a serpentine stage road, through dense wood, and with no end to the lack of facilities and conveniences incident to a wild, unsettled country and war times. Trees were bracketed and poles used where necessary.

At Crockett the terminal operator on the Arkansas state line was Mr. G. M. Baker, the present manager of the Dallas office, if I remember cor-

rectly—quite a difference between that and the ponderosity and altitudinosity of his present position.

On the forward end of the Southwestern line I think was Mr. F. V. Daniel, who was afterward the manager of the Galveston office when it had come into the possession of the Southwestern company. On the Houston end was the lamented Harris (initials forgotten), who acted as foreman of construction during the building of the line. Being a first-class operator, he had earned that coveted position and filled it ably and satisfactorily. He had the yellow fever in Houston in 1864, and though recovered sufficiently to come out, did so prematurely, took a relapse and died. Peace to his ashes. I'll never forget his plaintive song while "on the work," "When the Ivy and the Myrtle Were in Bloom."

This work completed, "having conquered the world," new worlds were sought to conquer. San Antonio was the next most important point, both from a military and commercial point of view. It was really of immense importance. Through that gateway from Mexico came immense stores of goods, military and other, overland by wagon. Goods came into Mexico at Bagdad and crossed the Rio Grande, and then over that seemingly endless road by wagon, reached San Antonio, thence to Houston and other points. The military began to clamor for a telegraph line and offered generous assistance. The Southwestern company undertook to do the work with the limited means at its command, together with private aid in the way of a partnership interest, money enough was raised and the work begun. By this time an operator, whose initials I have forgotten, named Osborne, with G. W. Carter, "the fighting parson," a man of transcendent talent, who was a very important adjunct in Washington just after the war, and whom it was said wrote many of the important papers for less gifted officials, at his back, essayed the construction of this line. It became another struggle as to who should find favor with the military and who should get the bulge in this important and eventually profitable undertaking. Materials were not to be had in Texas, nor anywhere else short of Europe, through Mexico. Mr. Osborne went to Mexico to arrange for wire. In the meantime the Southwestern company set the poles, bracketed what few trees there were and had everything ready for the wire, which had been ordered.

About this time, the spring of 1865, the work having been begun in the fall of 1864, the news came that that ineffable military genius and hero of scores of battles at great odds, Gen. Lee, had delivered up his sword to Gen. Grant. Of course the work was suspended, as in fact, it was completed as far as practicable at that time.

(To be continued.)

Labor to keep alive in your breast that little spark of celestial fire called conscience.—Washington.

A Quick Recognition.

It is as curious as it is true that hardly two operators finger the key alike, remarked the late A. H. Seymour, and on the wire are readily recognized by their working associates before they give a signal or finish the first word. This characteristic is so marked that the recognition is just as quick if one hears the same hand after a lapse of a year or more and on an entirely different circuit. This fact led to many thrilling and amusing incidents on the military telegraph wires during the Civil war on both sides of the line. In 1863, it will be remembered, the Confederates invaded southeastern Pennsylvania and for some days held the territory around Chambersburg. A well-known operator attached to Gen. Lee's staff cut into one after another of the wires running through that section connecting Philadelphia and Pittsburg, lying in wait for messages that might give some information as to the movements of Union troops. Knowing that some able and daring operators were at Lee's headquarters our office was on guard continually, and while the Confederates were in that section all important Government messages were sent over another route. Every day we were aware of their presence by the action of the current, when they came and when they went. A day or two before Gettysburg, Lee's operator, getting desperate, cut off the west, tried to disguise his writing and using the signal of an office further west called up Philadelphia and in a conversational way asked the prospects of a battle, etc. The Philadelphia operator who answered his call said immediately in reply: "Hello, Jack—, is that you?" Hesitating a moment the latter answered, "Yes," and after a brief chat about old times the rebel operator abruptly quit and got out. It was learned afterwards that Gen. Lee had obtained all the information he wanted and more, too, from another source and rapidly changed his base. The Philadelphia man had worked with the "Johnny Red" on a southern circuit some years before.

War Telegrams Sell High.

The original of Gen. Grant's telegram to Secretary Stanton announcing in Grant's own handwriting the surrender of Gen. Lee was sold in New York city for \$760 recently. It was among the literary possessions of the late Gen. Adam Badeau, military secretary to Grant. The despatch is written in Badeau's field orderly book and, although in lead pencil, has been so carefully preserved that the writing is as legible as when Grant wrote it thirty-six years ago.

The original of Lincoln's telegram to Grant on April 7, 1865: "Gen. Sheridan says: 'If the thing is pressed I think that Lee will surrender.' Let the thing be pressed," was also sold.

The testimony of progressive operators is that TELEGRAPH AGE is so thoroughly comprehensive in character as to make it indispensable to those who would keep informed. Its technical articles are of high practical value. Write for a free sample copy.

TYPEWRITER EXCHANGE

TITLE GUARANTEED.



Most complete stock of Second-Hand Machines of any house in the trade.
Samples of work and prices cheerfully furnished on application.
Machines shipped subject to inspection.

BRANCH OFFICES:

BOSTON—38 Bromfield Street.

BALTIMORE—5 No. Calvert Street.

CHICAGO—124 La Salle Street.

SAN FRANCISCO—536 California Street.

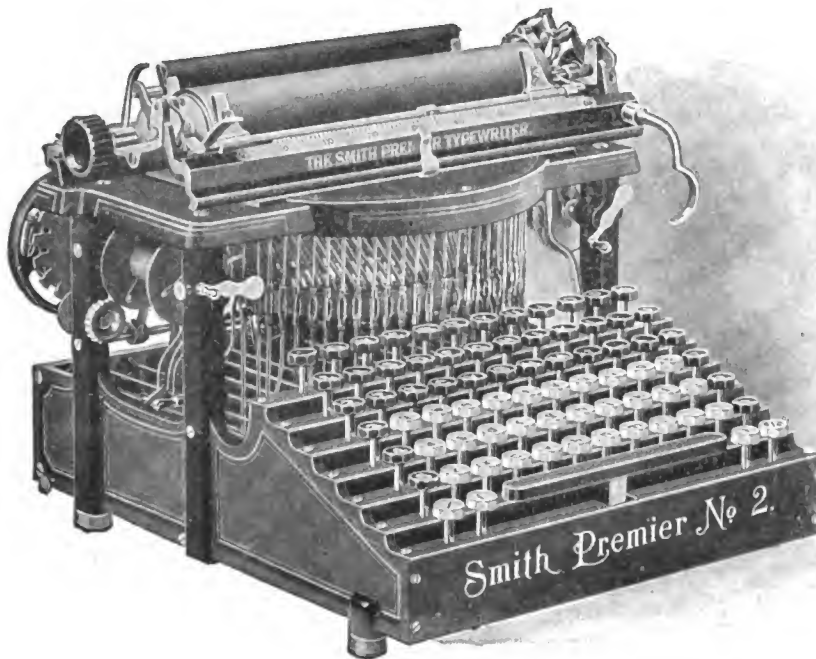
KANSAS CITY—818 Wyandotte Street.

PITTSBURG—432 Diamond Street.

ST. LOUIS—208 No. 9th Street.

Mention TELEGRAPH AGE, when you write to advertisers

THE SMITH PREMIER TYPEWRITER.



GRAND PRIX, 
 PARIS, 1900;
 HIGHEST AWARD
 POSSIBLE.



Favorite of operators on
 Press wires. Complete
 Keyboard. Always ready.
 Never out of order.



Simple, Durable,
 Light Touch,
 Strong Manifold.

THE SMITH PREMIER TYPEWRITER COMPANY,
 SYRACUSE, N. Y., U. S. A.

THE BAMEWELL FIRE ALARM TEL. CO.

19 Barclay St., New York.

Gold Medal awarded at Berlin, Germany, Exposition of Appliances for Fire Prevention and Fire Extinguishment.

**FIRE ALARM and POLICE SIGNAL
 TELEGRAPHS**
 FOR CITIES AND TOWNS

Over 1,000 Plants in Actual Service.

SELLING AGENTS:

FRANK C. STOVER,
 161-163 Randolph Street, Chicago, Ill.

A. J. COFFEY,
 230 Kearney Street, San Francisco, Cal.

OLIVER P. CROCKER,
 Atlanta, Ga.

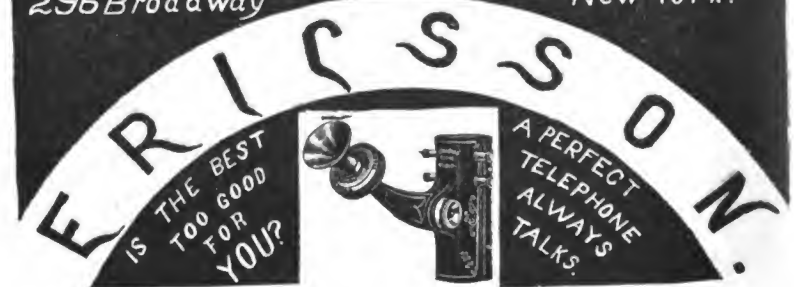
WM. E. DEBROW,
 178 Devonshire Street, Boston, Mass.

SOUTHERN ELECTRIC CO.,
 Hoan Building, Baltimore, Md.

WEBB CHANDLER,
 Richmond, Ind.

UTICA FIRE-ALARM TELEGRAPH CO.,
 Utica, N. Y.

ERICSSON TELEPHONE CO.
 296 Broadway New York.



JUST OUT

PRICE
 SMALL
 ACCUMULATORS. **50c.**

HOW TO MAKE AND USE THEM.
 With Numerous Illustrations.

BY P. MARSHALL.

Mailed postpaid to any address on receipt of price.

DYNAMOTORS

FOR TELEGRAPH WORK

By reason of superior design and construction our apparatus gives the best possible commercial value under all conditions of service.

SPRAGUE ELECTRIC CO.

General Offices: 527-531 West 34th Street, New York.

The Telegraph Age.

Entered as second-class matter at the New York, N. Y., Post Office

Published on the 1st and 16th of every month.

TERMS OF SUBSCRIPTION:

One Copy, One Year,	-	-	-	-	\$1.50
One Copy, Six Months,	-	-	-	-	.75
Foreign Countries,	-	-	-	-	2.00

ADDRESS ALL COMMUNICATIONS TO

J. B. TALTAVALL, - **Editor and Publisher,**

253 BROADWAY, NEW YORK.

E. H. BOWEN, MANAGER ADVERTISING DEPARTMENT.

W. N. GATES, SPECIAL ADV. AGT., 29 EUCLID AVE., CLEVELAND, O.

CABLE ADDRESS: "Telegraph," New York.
Telephone, 4143—Cortlandt.

CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the old as well as the new address must be given.

REMITTANCES TO TELEGRAPH AGE should be made invariably by draft on New York, postal or express order, and never by cash loosely enclosed in an envelope. By the latter method money is liable to be lost, and if so made is at the risk of the sender.

NEW YORK, January 1, 1902.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of TELEGRAPH AGE should cause our readers to carefully preserve their issues.

THE ROBERSON QUADRUPLIX.—The Roberson Quadruplex System, which has been recently adopted by the Western Union Telegraph Company, and which will be put into extensive use throughout that system, was illustrated and described in our issues of March 16 and April 1 of this year. Those who desire copies of these issues can obtain the same at 10 cents apiece. As there are only a few of these numbers left, we would urge those who wish to become posted on this new system to procure copies before they are entirely out of print.

The Pension Fund Proposition.

The question of establishing a pension fund for the benefit of aged and infirm or disabled telegraphers, first referred to in this journal in its issue of November 16, in furtherance of which the name and probable co-operation of Mr. Carnegie has been closely associated, has attracted wide attention and excited considerable discussion, as our correspondence columns bear witness. Yet at the same time there appears to be a rather

misty and indefinite idea entertained on the part of many concerning the proposition and its plan and scope. For while the average member of the fraternity seems to favor the suggestion of a pension fund per se, the impression held regarding its true functions, together with the belief that the individual would forfeit all money paid in if for any reason he became unable to continue his payments, or in the event of retirement from the telegraph service, causes many to reject the plan altogether as one offering no attractions.

In the first place Mr. Carnegie has only promised the payment of a substantial sum as a nucleus for a pension fund. To follow out his plan it is incumbent upon those who might wish to participate in the benefits of a pension fund to contribute thereto during their earlier and younger years in order to secure the guarantee of return payments when old age and decrepitude shall render them incapable of work. A fund of this character, it should be borne in mind, is different from that of a mutual aid society, or any plan of benefit insurance. When a person contributes to the latter he immediately begins to receive an equivalent in return, even though he later permits his insurance to lapse. This is not the case with a pension fund. A man may pay regularly into such a fund for ten, twenty or thirty years, as the case may be, and if at the end of any period his membership lapses for any reason, the return of the amount he has already paid in is liable to be disputed, although its repayment cannot be, perhaps legally and certainly not justly, withheld, for he has received no equivalent for his money. In the State of New York, and possibly in other states, the retention of such money payments is illegal. Yet the fact that the question is raised, and it is possible that the individual may lose his money under certain unfortunate conditions, makes such a form of investment providing against old age an unattractive one. And this very reason has within the past month caused the employees of the Michigan Central and of the Chicago, Milwaukee and St. Paul railroads to vote down similar pension schemes.

The railroad companies which have inaugurated pension fund systems, recognized the facts we have here recited, and consequently decided to make their pension funds wholly corporation affairs, the funds being maintained and the pensions paid out of money set aside for the purpose, employees not being called upon to contribute, at least directly, a single dollar for its support. This action was deemed not only just to faithful employees, but wise in its execution, inasmuch as it avoided all friction and maintained a proper control of the fund, restraining its workings strictly within the circle of employees for whom its benefits were intended.

The adoption of a pension fund system, then, as a measure of relief to telegraphers, as a distinctive body, is attendant with serious objections, and we believe that its presentment to be not only ill advised, but, as will be seen upon reflection, impracticable.

It is no doubt a fact that the railroad com-

panies, for instance, as it has been said, are gainers by the workings of a pension fund system exercised in behalf of their employees, because the latter realize fully that they will be taken care of after they have spent the most useful years of their lives in the railroad service. With telegraph companies, however, apparently no pension scheme has as yet been presented which appeals to them with sufficient force to cause any corporate action to be taken.

It will be well, therefore, to assume that the telegraph employees themselves must establish a pension fund if they wish one, regardless of any aid that the companies might extend to them.

Now, if Mr. Carnegie is disposed to aid the telegraphic fraternity, and we have assurances that this is his intention, in our opinion, the best way to confer benefit on all telegraphers would be for him to turn over to a trust company, or a board of trustees, made up of telegraph people, such a sum as he wishes to present to his old associates, that sum to be placed at interest, the increment of which to be distributed among the various telegraph, insurance and beneficial organizations already established. If, for instance, the Telegraphers' Mutual Benefit Association received a sufficient sum to warrant it in reducing its number of assessments each year, its five thousand members would each receive a direct benefit. The Gold and Stock Life Insurance Association, with its membership of one thousand, and the numerous aid societies throughout the country, with their local facilities which reach every member of the craft, would also be benefited proportionately, according to the amount available; thus every member of the telegraphic profession in the United States and Canada would derive some direct benefit of Mr. Carnegie's fund. The individual operators would not have to contribute to the fund, but they would continue to receive their share in it for all time to come.

This plan, which is briefly outlined, is feasible and simple and would meet apparently the desires of Mr. Carnegie, who wishes to do something that shall be of practical aid to all telegraph operators, large numbers of whom are already members of the various insurance and aid societies. The doors of these organizations are not closed to those who so far have not availed themselves of the benefit of these institutions. Of course the Carnegie fund would have to be made available only to telegraph, insurance and aid societies, and thus be kept within prescribed limitations.

Marconi's Motto is, "Time Is Everything."

"I cannot remain idle. Ever since I was a child I have had this feeling. Time means everything. If you cannot do a thing here do it elsewhere. An hour saved is an hour gained, and in that hour gained may be accomplished the one thing you have been striving for."

He is not only idle who does nothing, but he is idle who might be better employed.—Socrates.

A Testimonial to the Late M. H. Redding.

A handsomely engraved set of resolutions, appearing on a scroll, artistic in design and bordered with oak and laurel leaves, on the death of M. H. Redding, has been prepared, and for a few days was on view at the Western Union Cable office, 46 Broad street, New York, of which Mr. Redding was the late superintendent. The text is as follows: "The managers of branch Western Union telegraph offices in the down town New York city district, in meeting assembled, on November 18, 1901, adopted the following preamble and resolutions: Whereas, in his infinite wisdom the Almighty has seen fit to remove from our midst Michael H. Redding, assistant superintendent of the Western Union Telegraph Company; and, whereas, by his energy, perseverance and zeal he gained the implicit confidence of his superior officers; and, whereas, his fairness and consideration and manifest desire to assist the employees under his jurisdiction, endeared him to those having official relations with him; therefore, be it, resolved, that the branch office managers give expression at this time to their keen sorrow at his death, their regret at the loss of so able an official, so just a chief and kind a friend, and extend their deepest sympathy to those near and dear to him; and it is further, resolved, that these resolutions be engrossed and be presented to the bereaved family. Signed by:

"Misses Amelia M. Prime, Kate F. Kelly, Mary A. Fitzpatrick, Laura E. Hennessey, Hattie E. Brown, Julia L. Schrikker, Kate M. Kinnier, Mary E. Saunders, Nellie A. Scully, Mary T. Hopkins, Nellie F. Swords and Mrs. Elise R. Kemp. Messrs. P. J. Tierney, A. H. Swanwick, R. F. Murphy, B. H. Reynolds, W. J. Austin, R. G. Wilson, R. T. Tomes, W. P. Scully, Frederick Simmonds, J. W. Heermance, T. C. Eipper, P. F. Sullivan, J. R. Kirchner, H. Holland, P. K. Donohue, E. C. Thackeray, Geo. F. Lane, G. Knittel, J. J. McCabe, J. T. Carberry, T. F. Stern, H. H. Atwater, J. B. Korn-dorfer, John Simmonds, J. W. Wood, W. A. Schutt, F. H. McDonald, W. S. Mack, J. J. Costello, W. B. Coleman, F. A. Karl and A. Neilson."

Eastern seaside resorts have been famous this year by extraordinary entertainments, pig races, Wild-West improvisos and other extravagancies. But society at one of these places of heretofore unblushing repute literally had an eye put out when a receiving operator hit the letter "u" instead of "i" and made a paragraph announce that one of the wealthiest lady entertainers of the summer colony was going to give a "bug demonstration" at her villa on a certain night.

"No; the editors are not in," said the janitor to the early morning caller; "can I do anything for you?"

"I don't know," remarked the visitor, doubtfully; "are you connected with the poetical department?"

"Yes; I empty the waste baskets."

Sidetracked.

Freight train No. 306 rolled into Leesburg ten minutes late, and the conductor, Jim Bedford, strolled into the depot to sign his name to the trainbook and receive his orders. He glanced at the piece of yellow, flimsy paper the operator handed him, and read instructions from the train dispatcher to hand No. 306, his train, over to Leary, and for himself to wait at Leesburg for orders. Leary was standing outside of the station on the depot platform studying the order he had received to take Bedford's train out of Leesburg, says the Chicago Tribune.

"What's the matter with 'The Bug' this morning?" asked Mr. Leary, solicitously. "Funny thing sidetracking you here."

"No telling what 'The Bug' is liable to do," answered Bedford. "I'm glad he didn't tell me to take poison or run the train into the river. Great 'Bug,' that."

"The Bug" was the poetical name given by the trainmen on the I. K. & J. W. to Joplin, the chief train dispatcher of that division. He had originally been dubbed "The Bughouse," for the reason that it was generally believed along the line that Mr. Joplin's proper place was behind the bars in some State institution dedicated to the tender, fostering care of people with impaired intellect. Later the name had been shortened to simply "The Bug."

"I don't understand this thing at all," said Bedford. "But I suppose he wants to put me on 674 this afternoon and have me take it back to Rantoul. Well, I'll get a good rest, anyhow, and I need sleep like everything."

Bedford hunted up the only hotel in the place, after leaving instructions with the operator where he was to be found. An hour before time for No. 674 to pull in he was up and dressed, and after a lonesome lunch in the hotel went over to the station to await the expected order. But none came; No. 674 pulled in, and the conductor, Martin, received two orders from the dispatcher, but there was nothing for Bedford.

"Nice place this," called out Martin from the top of the caboose as it went slowly bumping along at the end of the train. "Going to stay long, Jimmy?" Bedford merely swore softly, and moved off to a shady place across the track where he could sit down and think it over.

What was "The Bug" going to do with him? Was he held at Leesburg for some special duty, and if so, what could it be? There was only one more freight train that day, and it was hardly to be expected that he was going to be put in charge. He sat around and studied the situation all the afternoon, and finally decided that he was to be ordered to go in on the passenger train to report at the end of the division to the Superintendent. He couldn't imagine why he should be called in after that fashion. He was not in trouble that he knew of, although a man could never tell whether he was in trouble or out of it as long as "The Bug" was in a position of authority.

But the passenger train pulled in and out again,

and still Bedford had received no orders. He hung about the station all the evening, but finally gave it up and went over to the hotel to sleep. He was down at the depot bright and early next morning, and told his troubles to Kane, who came in on No. 893.

"Funniest thing I ever heard of," said Kane. "I should think if he wanted to fire you that he would find the ordinary way about as good as any. Why don't you wire and find out?"

"Wire nothing," answered Bedford. "Only last week I wired 'The Bug,' and asked him if I should do so and so, and you ought to have seen the roast I got. Told me I was to obey the orders I received to the letter, and not bother asking him questions. Declared he would let me go on the instant that I wired him again asking what I should do. He said he was the man who was to tell me what I should do, and that he would tell me without any suggestions on my part. He also said that he would fire me at any station I happened to be, the instant I made another insinuation that he did not know enough to handle trainmen and give them proper orders. Oh, I sha'n't bother him to explain this order. He told me to stay here in Leesburg until further orders, and here I stick."

Kane thought it all over, marveled exceedingly at the marooning of his friend, Mr. Bedford, and returned to his train.

The word had gradually spread among the trainmen that Bedford was hung up in Leesburg, and every train crew that passed through the town had considerable to say on the subject, but Bedford treated all their remarks with a supreme indifference. At the terminal no one dared to speak to "The Bug" about Bedford, and besides all the trainmen began to have a quiet notion that "The Bug" had blundered, and after giving Bedford the order to wait in Leesburg, had forgotten all about it. The trainmen resolved not to speak Bedford's name at the terminal, and do nothing to remind "The Bug" of the lonely James waiting patiently on the platform at Leesburg.

Two more days passed away and Jim Bedford still remained at Leesburg. He had grown to be a great object of interest to the villagers by this time. They wondered what a real live conductor could do hanging around Leesburg day after day, and apparently having nothing to do but sit under a shade tree across the tracks and watch the trains go through.

James grew tired of the monotony of the station platform and the tree and began spending more of his time down town. In three days more he knew the name of every man, woman and child in Leesburg. He attended the revival services at the Methodist church at night, and because he had a strong bass voice was asked to sing in the choir and accepted the offer, and at every meeting he was to be found in his place, seated in his chair near the organ. He went to a barn-raising a half-mile from town, and worked with might and main all one day to put up the framework of Hi Hollister's new barn.

There was a fire in town one night and Jim was

the first man on the spot, and after organizing a bucket brigade to fight the fire, climbed up a ladder and rescued old Mrs. Tompkins from being suffocated. Through his efforts the town was saved from a conflagration that might have wiped out the whole of the town of Leesburg. So at a mass meeting of citizens the next day Bedford was presented with a gold watch as big as a biscuit, and with a detailed account of his heroism engraved in the case.

Another week passed by. Jim in the meantime had repaired the engine in Kaiser's flour mill, and cured old man Johnson of the rheumatism. He played the fiddle at a dance at Cyrus Hunter's and Rev. Nathaniel Boggies being ill from the effects of the protracted meeting, Jim preached the funeral for old Si Hannerkin, one of the old settlers of Towers Township.

It was a beautiful sermon, too, in its way. Jim said that Mr. Si Hannerkin had always done his duty and run right on time, and that he always stood where his superintendent, Providence, had placed him, and that he always kept a full head of steam on, and had run straight and true all his life. The Towers County Review that week said it was the finest funeral sermon that had ever been heard in Leesburg.

The next week Jim taught the school for two days while the teacher took a vacation trip home. He also mixed the paint and directed the work of painting the engine house. He had become quite accustomed to life in Leesburg, and was considering an offer of the miller to take him into partnership.

One day "The Bug" was talking to one of the telegraphers in the division superintendent's office at the terminal.

"What ever became of that man Bedford?" asked "The Bug." Got mad suddenly and quit without a word, didn't he?"

"No," said the operator. "Jim wouldn't do that. He was too sensible a fellow to do a crazy thing like that."

"Well, he's not here, any more," snapped "The Bug." "I didn't discharge him. He must have quit of his own accord."

"How do you know he quit?" asked the telegraph operator.

"'Cause he ain't here," said "The Bug."

"When did he quit?" asked the operator.

"I don't know," snapped "The Bug."

He started an inquiry to find out when and where Bedford had quit the road. One of the clerks, after a long hunt, came in and showed "The Bug" the copy of a message.

"Here's the last record we have of Bedford, sir," said the clerk.

"The Bug" read the order. It was to Bedford, conductor train No. 306, and was to the effect that Leary was to bring train No. 306 from Leesburg, and that Bedford, conductor, was to wait there for orders."

A cold sweat began to break out on "The Bug's" forehead.

"Is that the last train order in regard to Bedford?"

he asked in a low, halting voice. The clerk said it was.

"The Bug" turned to the operator and asked him to call up Leesburg, and ask where Bedford was. The answer came back in an instant:

"Sitting under a tree across the track waiting for orders."

Bedford left Leesburg that night on the first good-bye, and the choir of the church sang "Till We Meet Again," and made it doubly effective by breaking down and weeping. The parting would have been much harder had not Bedford assured the gathering that he would be back again the next day on top of the caboose of train No. 306.

And he was. "The Bug" never showed by the slightest sign that anything unusual had happened, and Bedford received half pay for the three weeks he had been waiting.

"I'm sorry 'The Bug' woke up and asked after me," said Conductor Bedford to the head brakeman the next day as his train rumbled out of Leesburg. "I would have owned that town in two months more, and been drawing pay as a conductor at the same time. 'The Bug' is a great institution."

Lawful to Send Racing News.

The Kentucky Court of Appeals in an opinion by Chief Justice Painter on December 18 holds that a telegraph company is not liable for transmitting a message to gambling places and in no wise responsible for the uses to which information transmitted over its lines is put.

The case in question was Commonwealth against the Western Union Telegraph Company. It grew out of an indictment charging the company with unlawfully maintaining a common nuisance in furnishing "The Kingston," a Louisville, Ky., pool-room, information about horse races and unlawfully enabling the patrons at "The Kingston" to bet on the results of races in all parts of the United States. The lower court found the company not guilty.

Justice Painter holds in construing the statute that a telegraph company's position toward the public is like that of a railroad company and other common carriers. As to the point on which the indictment was found, he says:

"At common law a gambling house is a common nuisance. It is detrimental to the public, inciting citizens to crime. Persons owning or occupying and controlling such houses are guilty, but the telegraph company is not in co-operation or control. The simple fact that persons receive the information and as a result of it are guilty of unlawful practice cannot make the company responsible. If that were true the transmission to newspapers of prize fights would be unlawful."

It has been estimated that the Marconi waves travel at the rate of seven times around the earth in a second. On this basis it would take nearly three minutes for a message to reach Mars when it is at its nearest point to the earth.

A Prominent English Telegrapher.

Charles H. Garland, the secretary of the London Branch of the Telegraph Clerks' Association of the United Kingdom was born at Witham, in the County of Essex, England, thirty-four years ago. When eleven years of age, he went to London and entered upon his first employment when about twelve and a half years old. He received an ordinary primary education, which has been augmented by continuous home study along many lines. He entered the Post Office telegraph service January 7, 1882, and soon rose to a position of prominence among his associates. In 1892 he was elected secretary of the London Branch of the Telegraph Clerks' Association, in which position he has displayed such uncommon zeal and fearlessness in advocating and advancing the interests of the telegraph clerks that he has been re-elected each year. He is at present a member of the operating staff of the central office in London.



CHARLES H. GARLAND.

In 1895 he gave evidence on the health of staff before the Inter-Departmental Committee on Postal establishment, making a strong impression by his complete knowledge of the subject and the admirable manner of its presentation. In 1899 he was a member of the English delegation to the International Volta celebration at Como in Italy. His fluent and eloquent command of the French language, combined with rare ability in debate, secured for him the leadership of his delegation and a leading place in the deliberations of the International Congress.

In the many social functions incident to the celebration he was also a prominent figure and was always a favorite speaker at the banquets. Mr. Garland's important place in the celebration was recognized by the Italian government, and the decoration, "Order of the Italian Crown," was conferred upon him by the late King Humbert.

In 1900 he was a delegate to the Congress which met in Paris and which in a measure was a continuation of the Italian deliberations of the previous year. He was a delegate to the Trades Union Congress at Plymouth in 1899, at Huddersfield in 1900 and at Swansea in 1901, in the deliberations of all of which he took a prominent part. In 1901 he was also a delegate to the British Congress on Tuberculosis which met in London, where he read a paper on "Consumption in the Post Office," which attracted extended notice and which appears elsewhere in this issue. He has for years attended Postal Congresses in all parts of England. Mr. Garland is rapidly acquiring fame as a writer, and has for a number of years been a contributor to many well known journals. This year he contributed a study of "Women as Telegraphists" to the Economic Journal, the great English review of economics and organ of the British Economic Association, and an article on the "Post Office and Prevention of Tuberculosis" to the *Lancet*, the leading medical publication of England. In addition to his many other activities he finds time to edit the *Civil Service Magazine*. Among his friends and admirers are many members of Parliament, before whom he has appeared in the interest of his Telegraph associates.

Mr. Garland's rise to leadership of the Postal Telegraph Clerks' Association of the United Kingdom at such an early age is due to his marked ability, his fearless independence, his aggressive and intelligent insistence upon remedial regulations and his high sense of integrity. He is withal a man of pleasing personality and the architect of his own fortunes.

Telegraph Poles Damaged by Woodpeckers.

'At a meeting of the British Ornithologists' Club, held in November last, there was exhibited the top of a telegraph pole which had been sent from the government contractors at Cardiff. It was pierced by a hole about three inches in diameter. The damage to the poles in that neighborhood was considerable, and was done by woodpeckers. Mention was made that some years ago there were complaints of the damage done by woodpeckers to the telegraph poles in Germany. Articles on the subject appeared in the ornithological journals, and eventually the plan of impregnating the wood with chemicals was adopted and was efficacious.

Among telegraphers, where there are so many professional gentlemen, every man ought to carry his "shingle" with him, so office associates would know whose advice they were seeking.

Recently a man went to one of these and asked: "Doctor, what can I get to prevent losing my hair?"

The man addressed, it appears, was a lawyer, not a doctor, and he promptly replied: "To prevent losing your hair? Why, get a divorce!"

One of the sublimest things in this world is plain truth.—E. B. Lytton.

General Mention.

Manager Edgecomb of the Postal Telegraph-Cable office at Portland, Me., recently invited the teachers and pupils of the public schools of that city, much to their pleasure, to visit his up-to-date office and examine the actual workings of the telegraph from an educational standpoint.

We are in receipt of the following, which was accompanied by an artistic desk pad for 1902:

"That all which is good—and none that is bad—and that happiness and contentment be your lot for 1902, is the sincere wish of your friend, Henry L. Shippy, treasurer John A. Roebling's Sons Co., of New York.

The father of a thirteen-year-old boy, who it is claimed is a very good operator, has reason to be proud of his son's ability, but he cannot expect us to proclaim him the youngest operator in the country. Compared with others of tender age who have shown exceptional ability as telegraphers, he is an old timer. Our records show that good telegraphic work has been done by children, both male and female, at five years of age.

President Roosevelt at Washington, D. C., on December 12, closed a telegraph key which opened the proceedings of the convention of the Woodman of the World at Seattle, Washington. The telegraph circuit was about 4,000 miles in length. It is not on record that the manipulator of the lightning at the distant end endeavored to engage the President in Morse conversation. The President enjoys the personal acquaintance of a large number of well known operators, who occasionally talk "shop" with him.

Mr. L. C. Hall, chief operator of the Western Union Telegraph Company, Norfolk, Va., contributes an interesting article, entitled "Telegraphic Talks and Talkers," to the January number of McClure's magazine. It will attract attention not only among telegraphers, but of the general public as well, for it successfully presents the humanly side of the craft, and ingeniously draws a parallel between "Morse" and a spoken language, from the fact that "Morse" is the language into which all telegrams have first to be translated and from which a re-translation becomes necessary before they can be read by the outside world. The article is a welcome contribution to the literature of the telegraph.

The large relay office maintained by the Western Union Telegraph Company for many years at Ogden, Utah, is being transferred to Salt Lake City, and the working force in the latter place is to be increased to the extent of from 15 to 20 operators. Heretofore every message sent out or received at Salt Lake City had to be relayed at Ogden. The result was that there were many delays, and, in times of great rush of business, much confusion and loss of time. Now Salt Lake City is to be one of the transcontinental stations, the others being Chicago, Omaha, and San Francisco. Assistant Superintendent Belvidere Brooks of Denver is in charge

of the transfer. The consolidated offices in Salt Lake City will be under the management of J. B. Twiford, for many years manager of the Ogden office.

It is reported that Dennis J. Hern, general manager of the Mutual District Messenger Company, Boston, Mass., is mentioned as possible Wire Commissioner under Mayor Collins. Mr. Hern is an expert electrician, also an old time telegraph operator. He was superintendent of the Atlantic and Pacific Telegraph Company and held the same position in the Mutual Union Telegraph Company, at Boston. He is President of the Boston Low Tension Wire Association, composed of all companies having wires underground in that city. His position with the Mutual District Messenger Company is one that he thoroughly enjoys. Should he be tendered the position by Mayor Collins there is sure to be a howl from about five hundred youngsters—his messenger boys, who are as devoted to him as he is to them.

New York Visitors.

Mr. E. B. Pillsbury, superintendent of the Postal Telegraph-Cable Company, Boston, Mass.

Mr. C. C. Adams, superintendent of the Postal Telegraph-Cable Company, Philadelphia, Pa.

Mr. J. W. Kates, general superintendent of the Postal Telegraph-Cable Company, Richmond, Va.

Mr. L. A. Tanquary, chairman Board of Directors, Order of Railroad Telegraphers, Cucharas, Col.

Wants Uncle Sam to Buy the Telegraphs.

Representative Jackson, of Kansas, has introduced a bill in Congress providing that the Government purchase the Western Union and the Postal Telegraph-Cable companies and thereafter operate them in connection with the Post Office Department. Provision is made for appraisal of the property of the companies and for the payment of its appraised value when the amount is reported to Congress.

MAGNETIC CLUB.—The annual business meeting of the Magnetic Club will be held in Room 60, No. 195 Broadway, New York, on Thursday, January 9, at 5 P. M., for the election of officers for the ensuing year, of four members of the Governing Committee to serve for two years, and for the consideration of such other business as may properly come before the meeting. It is also proposed to amend Article V of the Constitution to read: Meetings shall be held in the months of June and November, etc.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.

Death of Charles W. Lundy.

Charles W. Lundy, superintendent of the Direct United States Cable Company, Halifax, N. S., died in that city on December 16, aged sixty-four years.

Mr. Lundy was undoubtedly the dean of transatlantic telegraphers, and his removal reduces to its narrowest limits that small heroic band of pioneers who, following the success of the English channel cable, went forth into the undiscovered country of deep sea cable possibilities with little to guide them but research, experiment, and above all, an indomitable will, which enabled them to lay the foundation of that vast network of cables that now connects the different countries of the world. The laying of an Atlantic cable to-day is comparatively a small matter, but it was not so in the earlier days of the subject of this sketch, when the scheme was visionary to many, and ridiculed by some, so that all the more honor is due to the first workers, who were not to be discouraged by difficulties, nor suppressed by failure. Mr. Lundy served in the cable expedition of 1858, and was stationed at Bay of Bull's Arm, in Trinity Bay, Newfoundland, which was the first transatlantic cable station in America. In conjunction with his companions there he received and forwarded the earliest cablegrams of which authentic evidence is preserved. Unfortunately this cable was soon interrupted and abandoned. In 1865 following the vigorous energies of that great man, Cyrus W. Field, and his worthy associates, who never yielded to despair, of the enterprise, Mr. Lundy again went to Newfoundland to await, at Hearts' Content, the arrival of the expedition of that year, but alas! was subjected to an even greater disappointment, for the cable broke in mid-ocean, and could not then be recovered. Then came the dark days of doubt, depression, and despondency, but, like the evening star, the light was ever present except when obscured by the passing clouds of temporary failure, which could not suppress the inherent energies of Mr. Field, who went to London, and by his personal solicitation and influence enlisted the sympathies and assistance of a small number of philanthropists and capitalists whose names and work, then probably unknown beyond their own circle, will last for ever in history as an evidence of a desire to rescue from temporary oblivion a work, the success of which they knew would be a dominant factor in the world's prosperity and friendship of nations.

As it is said that all things come to him who waits, so the Atlantic cable expedition of 1866 was a complete success, for not only was that cable laid, but the mid-ocean end of the cable lost the previous year, was recovered and continued to Newfoundland, thus connecting the two hemispheres. This was undoubtedly the starting point of the gigantic deep sea cable service, as we find it to-day. Mr. Lundy served in this expedition on board the "Great Eastern," and remained a while at Heart's Content, in charge of the station, shortly afterwards going to Madras, India, to continue work in the same field.

With the organization of the Direct United

States Cable Company in 1874, Mr. Lundy was made that company's representative on board their new cable steamer "Farraday," during the laying of the cables, and afterwards represented the company at Torbay, N. S., until the different sections were transferred to Halifax. Here he remained as superintendent until the time of his decease. He was endowed by nature with exceptional gifts, for he was recognized as one of the most brilliant men in the cable service, while his distinct personality and bonhomie were proverbial as also his unimpeachable honor and integrity.

Obituary Notes.

John W. McRoy, operator at Mobile, Ala., died on December 13, 1901, aged 38 years.

John Swinton, a journalist well known to the older members of the New York telegraph profession, died at his home in Brooklyn on December 15, in the seventy-second year of his age.

Robert W. Jaggard, assistant electrician of the City Electrical Bureau, of Philadelphia, Pa., died on Dec. 22. Mr. Jaggard rose from the telegraph ranks, beginning as a messenger, graduating as an operator and studiously developed into an expert electrician.

Richard S. Gough, manager of the Postal Telegraph-Cable Company, Union Stock Yards, Chicago, Ill., died suddenly of heart disease on December 17. Mr. Gough was born in England in 1844, and went to Chicago in 1859, where he learned telegraphy, securing a position as operator at the Union Stock Yards the year following. Mr. Gough's entire telegraphic career was spent at this point with the exception of a brief period during the Civil War, when he was in the United States military telegraph service. He leaves a wife and four adult children.

E. Warren Fish, of Toledo, O., died on December 6 after an illness extending over a period of several months. Mr. Fish was born at Bellevue, O., March 18, 1846. He entered the telegraphic field first as a messenger at the age of 14, and soon became an expert telegrapher. In 1860 he was appointed manager of the old Atlantic and Pacific Telegraph Company at Cleveland, O., but resigned this position two years later to enter the service of the Western Union Telegraph Company at St. Louis, Mo., remaining there but a short time, when he came to Toledo for the same company. In 1866 he accepted the managership of the Union Depot office of this city, which position he held up to the time of his death. Mr. Fish was a member of the Telegraphers' Mutual Benefit Association, and was widely known. He leaves a widow, who has the deep sympathy of the entire profession. The funeral services were held Sunday afternoon, December 8, and were largely attended by Lake Shore railway officials and by Toledo telegraphers.

An honest man is able to speak for himself, when a knave cannot.—Shakespeare.

LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

CLEVELAND, O., NOTES.

A. Behner, formerly wire chief of the Western Union Telegraph Company, has resigned to go with Lamprecht Bros. & Co., taking the place of C. C. Daugherty, who is now working for the Western Union Telegraph Company.

J. Robert Maynard has also been added to the force of the brokerage firm, thus making five regular men at their main office. About a month ago the firm opened up a new branch office at Youngstown, O., with W. B. Stephens as manager and W. F. Fiedler as operator.

At their branch at Akron, O., C. App is manager and E. H. Roth operator.

E. C. Monroe was in charge at Youngstown for a couple of weeks, but he is back at the main office again.

BUFFALO, N. Y., WESTERN UNION.

Mr. Albert J. Fowler and Miss Agnes McNerny, of this office, were married recently. *THE AGE* and their many friends extend congratulations and best wishes.

Mr. W. H. Newall has accepted a position with the Michigan Investment Company, and Mr. M. Williams has gone with Spader & Co.

Miss Elizabeth Fitzmaurice is still confined at her home by a long siege of sickness.

Harry Leipman has changed from the night force to days.

Miss Nellie McCann has returned after the close of a busy season at the Anchor Line office. Fred J. Keller has also returned from the Dock Office.

William B. Phillips, formerly solicitor here, and for the past three months employed as clerk in the city freight office of the New York Central Railroad, committed suicide by hanging.

ST. LOUIS, MO., WESTERN UNION.

Wm. N. Manley has returned to St. Louis, having been absent for some time, conducting a poolroom in the South.

E. C. Leppere, who has been manager for the Western Union at Alton, Ill., for the past two years, is now one of the force here.

Miss Annie McLaughlin has resigned and gone to Atlanta, Ga., to work for the same company.

Patrick Hogan, Peter Johnson and Henry Horstman have also gone to Atlanta, where they will be employed in the Wheatstone service, which has just been inaugurated at that place.

Born.—To Mrs. and Mr. C. A. Willis, formerly of Cairo, Ill., now of St. Louis, a daughter.

NEW YORK CITY.

All popular music at less than half price. "Utopian Waltzes," "Whirlwind March," "Ben Hur Chariot Race," "Belle of Manhattan" March and Two-Step, "When You Were Sweet Sixteen," "My Old Virginia Home," "Left on the Battlefield," "Dolly Gray," "The Sweetheart That I Loved In Boyhood Days," "Spider and Fly," 18 cents each. "Palms," "Popular Gems," "Lang's Flower Song," "Calvary," "Rusticana," 10 cents each. Pianos—all makes—sold, \$1.00 per week. B. L. Brannan, 195 Broadway, New York.

WESTERN UNION.

Resigned—G. U. Morris, P. A. McGriff and W. E. Gilbert.

Mr. George A. Newton has resumed work on the call wire loops. The outings he has had at the different offices and race tracks during the open season has fully restored his health.

Mr. George W. Boyle and wife of Little Falls, N. Y., were recent visitors.

George M. Murphy, a brother of Frank D. Murphy, died suddenly in San Jose, Cal., December 15.

Appointments—J. F. Stacom, C. E. Bridgeman, A. J. Tierney, C. W. Minier, H. H. Riggleman, J. L. Boyle, P. S. Sprouse and W. L. Wilkinson.

Mr. Henry Holland, the veteran manager of the Western Union telegraph office in the Maritime Exchange, New York, is well and favorably known to the entire shipping community of the metropolis. His acquaintances not only comprise the owners and agents of vessels, but it also embraces the captains and other officers of ships hailing from all parts of the world. Although having been connected with the shipping service since it began to utilize the telegraph, Mr. Holland is a young man in appearance and movements, which is no doubt due to his long association with seafaring men, who have the reputation of being young when the dwellers on land are thinking of the hereafter.

Mr. Jas. A. Griswold, formerly of The Associated Press in Boston, Mass., is now with C. I. Hudson & Co., Wall street brokers.

The sympathy of his friends is extended to Mr. George B. Scott, superintendent of the Gold and Stock Telegraph Company, New York, on the death of his daughter, Susie Duer Scott, which occurred at his home in Yonkers, N. Y., on December 17.

Mr. Jacob Tuck, for many years a prominent operator of this office, who sometime since was admitted to the bar, has opened law offices at 346-348 Broadway, where he is conducting the general practice of law.

At a meeting of the stockholders of the Serial Building Loan and Savings Institution, and the Electric Building and Loan Association held at the room of the associations, Western Union Building, December 17, the following nominations were made: David B. Mitchell, president; John Brant, vice-president; Thomas M. Brennan, treasurer; Ed-

win F. Howell, secretary; John B. Sabine and Augustus A. Rich, attorneys. Directors, W. J. Quinn, Francis W. Jones, E. S. Butterfield, E. F. Cummings, F. W. Gregory, W. C. Burton, T. A. Brooks, M. J. O'Leary, A. E. Chandler, M. F. Gaffney, T. E. Fleming, H. G. King, G. H. Schnitgen, G. S. Blanchard and A. P. Stirling. Practically the same persons were nominated for both associations. The election will take place the third Tuesday in January, the 21st inst., and as there is no opposition those nominated will be elected. The auditors chosen and elected for the Serial are: R. M. Nesbitt, James R. Beard and George H. Murphy.

At the annual election of officers of Amaranth Council, Royal Arcanum, Walter C. Burton was elected first representative to the Grand Council of New York State, and J. C. Watts, vice-regent, both of this office. Among the past regents of this council are W. C. Burton, W. H. Jackson and W. A. Van Orden of "195." Quite a number of telegraphers are members of Amaranth Council.

John Brant, secretary of the Old Time Telegraphers' and Historical Association has lately been hard at work getting out the report of the Montreal meeting, and it is now about ready for distribution. A full discussion of the Telegraphers' Home project is printed in this book.

POSTAL.

J. Bert Roloson of the eastern division, who has been absent on account of severe illness, has returned to duty.

Harold Rhodes, who has been away for three weeks, owing to severe illness, is back at the office again.

Mr. W. H. Mathews, chief clerk, has in a short time made his department a model of efficiency which would be well nigh impossible to improve on. He has everything systematized to a nicety and confusion among his force is unknown.

G. F. Randolph, for the fifth year, is engaged in doing the artistic lettering on franks of this company.

Mr. W. I. Riker has returned for the winter, after spending a season on his farm in New Jersey.

The following were away on holiday vacations: A. E. Whitaker, J. T. Good and P. O. Purcell.

Douglas D. Forbes, an old time telegrapher, a veteran of the Civil War, and for the last ten or twelve years an operator in this office, died after a severe illness of several weeks at the residence of his brother in Brooklyn on December 14, aged 67 years. Mr. Forbes, who had been connected in the past with nearly all of the different telegraph companies, was highly esteemed by all, and he was regarded as a first class operator.

TOLEDO, O., WESTERN UNION.

A very pretty home wedding took place here on November 26, when Mr. Charles Olsen, "one of the finest" on the day force, was married to Miss Edna Grace Eicher. The boys remembered the pair handsomely with a beautiful mantel clock and two candelabras to match.

WASHINGTON, D. C., WESTERN UNION.

Mr. Raymond B. Dickey, of the all night force, is spending the holidays with friends and relatives in Indiana.

Miss Maud L. Robinson has accepted a position with the Western Union in Jacksonville, Fla.

Additions to the waiting list: Messrs. Evans, Gaskell, Casterlin, Howe, Davin and Hickok.

J. L. Carney has resigned.

Mr. F. Fernandez is confined to his room on account of illness.

Mr. W. E. Durnin of Philadelphia paid us a visit recently.

Mr. Edward Libbey is in charge of the Capitol office for the coming season, assisted by Messrs. Rodier and Winters.

SEATTLE, WASH., WESTERN UNION.

Harry Reynolds has arrived from San Francisco.

Departures: W. C. Neele, to Vancouver, B. C.; J. Frank Holder, resigned to accept a position with the New York Life Insurance Company, this city.

Visitors: Col. R. C. Clowry, C. H. Bristol, Chicago; F. Jaynes, L. McKisick, San Francisco, and J. Levin, Minneapolis.

As a result of the visit of these officials we expect better facilities for handling our increasing business in the near future.

A son has been born to E. S. Swift.

CHICAGO, ILL.

Typewriters bought, sold, rented and repaired. Renting a specialty. Also Agency for "Telegraph Age." Telegraphers' Typewriter Co., Room 5, 122 La Salle St., Chicago, Ill. Be sure to mention TELEGRAPH AGE.

SOMETHING NEW—no operator should be without. The Eacutt-Cawthern Typewriter Cleaner is a simple little brush; can be inserted in machine in two seconds, type thoroughly cleaned in 30 seconds without soiling fingers. Formerly required 15 minutes, and soiled and inkstained fingers. Price 50 cents, postpaid. Agents wanted. Eacutt and Cawthern, Room 704, 86 La Salle St., Chicago, Ill.

WESTERN UNION.

Frank Stevens took a trip to Buckley, Ill., to attend his sick mother.

Miss W. C. Priess, of Glendale, Ill., and B. A. Burdick, of this office, were married November 16, and our congratulations are most hearty.

Mrs. Mark Smith, who has been nursing a broken arm, is back again at the office.

Traffic Chief Frank Richardson has been on the sick list.

Division Chief Frank Crittenden, who has been away sick for two weeks, was represented during his absence by Bert Johnson.

Chief B. F. McKee is developing much talent as an amateur photographer, and is producing some excellent pictures.

The chief operator, assistant chief operator, wire chiefs and division chiefs have been hustling in

order to overcome the trouble on hundreds of wires caused by the recent cold snap, which has impaired the telegraph service over a wide reach of country.

The complimentary military ball given by the Signal Corps, I. N. G., at the armory, Friday, December 6, proved to be one of the most enjoyable events of its kind this season. The grand march was led by Capt. J. W. McConnell, commanding the Signal Corps, and Mrs. W. J. Lloyd, the charming wife of our ex-captain. Six hundred couples did homage to the occasion.

The orchestra was directed by Prof. A. F. Weldon, leader of the 2d Regiment band, and flattering comments were heard from all sides upon the superb quality of the music.

As was expected, the Chicago telegraphers were liberally represented and no one was heard to say he did not have a delightful evening.

The armory was tastily decorated with the national flag and Signal Corps flags.

A word of praise for the members of the Signal Corps should not be overlooked. Soldierly and neat in appearance, uniformity of dress, buttons and brasses aglow, combined with courteous and strict attention to their guests, elicited commendation and assures them of the good wishes and support of their adherents at the next reception.

At the annual election of Morse Council No. 347, National Union, the following officers were chosen: Henry Jahn, president; O. B. Sims, vice-president; Edward Hearn, speaker; F. J. Scherrer, recording secretary; Henry Behl, financial secretary; G. J. Schoenfeldt, usher; W. M. McLean, chaplain; Mr. O'Brien, sergeant; Mr. Dorien, doorkeeper; Doctor Seidscheck and J. Leary, delegates to the cabinet; F. M. Crittenden and J. McCurdy delegates to the general assembly.

Fully three hundred telegraphers attended the "stag" given by the Chicago Telegraphers' Athletic Association Saturday evening, November 30, an attractive programme being presented. Mr. Tom Burke, in opening the evening's entertainment, stated that the object in bringing about the social affair was to further the principle of good fellowship among telegraphers. He then presented Mr. Thos. Hanley as master of ceremonies for the evening, and Mr. Wm. Hefferman as referee for the boxing contests.

Mr. Reading presented an interesting and laughable monologue. Mr. John McClure, of the Buckingham Department, next sang the "Holy City," accompanied by Mr. Bert Forbes on the organ.

An agreeable surprise was the Shakesperian acting of Mr. Dugan, of the first Cleveland wire, days. He acted his parts in a creditable manner. Two spirited boxing contests were marked features of the evening, between the execution of which refreshments were served.

POSTAL.

Messrs. Darby, Cowdrey and Hatch have returned to work. Mr. Hatch spent a vacation in Ohio, while Messrs. Cowdrey and Darby were sick.

Business has continued very good, and will no doubt last until after New Year's.

Messrs. J. M. Strong, Thomas Manning, Frank Lowe, Ulerich, Diefenderfer, Girard and Goss have been transferred from extra to regular force.

L. M. Strong has left for St. Louis. Mr. Mendelsohn has returned from a trip to the South; he visited Memphis, New Orleans and other Southern cities.

Among recent arrivals on the extra list are: Miss German, F. Smith, Mr. Morton, Mrs. Reynolds, Mr. Knolley, Miss McLean, Mr. Lawrence. Mr. Bowman is working a new trick, 10.30 A. M. to 7.30 P. M.

B. I. Gable, formerly operator at Madison, Wis., is said to be dangerously ill at Belle Point Hospital, Ft. Smith, Ark.

The Skirrow Arm Extension Resonator has been placed on the New York bonus wire. It is far ahead of the old style in use in this office.

Mr. Gilpin, who recently joined the United States Army, was a recent visitor to this office. He is leaving for signal service in the Philippines. He was formerly an operator at the Board of Trade office.

J. Newell Smith, of this office, a musician of local repute, has composed a song entitled, "Laurilee, My Laughing Blue-Eyed Baby," which has been well received.

MONTREAL, QUE., GREAT NORTHWEST-ERN.

Eighteen lockers for typewriters have been placed in the operating room. This is a great improvement, as every "mill man" will have his own apartment securely locked. Our circuit manager, Thomas Rodger, cannot be too highly praised for the way he studies the comforts of his operators.

C. W. Soules has resigned and secured a position with the Postal, at Augusta, Georgia. He was very popular here.

Arthur Ross has accepted a position with Broker Barclay, Metropolitan Stock Company.

Enquiries at the Montreal General Hospital elicit the fact that Miss Malvina St. Pierre, of this office, who has been ill for some time, is progressing satisfactorily.

Business continues good and consequently there will be no reductions made in the staff.

TORONTO, ONT., GREAT NORTHWEST-ERN.

A busy season for the Great Northwestern in Toronto has just ended, and the staff, even at this late date, is fairly large. Mr. Charles E. McManus, chief operator, is ably assisted during the day by Mr. John B. Rogers, wire chief, and Messrs Archie Pedan and James F. Middlemiss, traffic chiefs. Mr. J. L. Curry is night chief operator, Mr. Charles W. Dawzy traffic chief and Mr. H. Clark all-night chief. Mr. A. B. Smith is superintendent of construction. Mr. J. Duckworth, inspector.

Although some of our best known men are employed in outside offices, many familiar names will be recognized in the following list:

Day staff: Messrs. R. Burns, Frank Burns,

Willard Chalmers, James Cormack, W. J. Dillon, Charles Eggett, George Flannery, Edward Flannery, V. Fleury, W. J. Hill, O. Hitchcock, Edward Hiscock, W. Ide, J. Kirkup, H. Lewis, Frederick Lee, C. Lillie, Geo. McBain, Harry Phillips, W. D. Toye, J. Watson, Frank Worsley, Mrs. Baird, Misses Carine Brown, Amy Brown, Alice Briggs, Jennie Clark, Edith Curry, Jennie Cunningham, L. Euart, Hattie Hill, Grace Hiscock, Daisy Holding, Dot Holding, Helen Kidd, E. Kinsman, Margaret Lohead, Louise Martin, Louie Phillipeau, G. Quigg, R. Rothwell.

Night: Messrs. R. A. Baker, L. Douglas, H. Kirkpatrick, A. Moysey, J. McCarthy, A. Richardson, Harry Rowntree.

Miss Mayme Dawson at the Evening Telegram, and Mr. Geo. Curry at The World.

Ticker girls: Miss Yvonne Douglass and Miss Berenice Kaiser; Miss Annie Coakwell, business clerk.

Day checks: Messrs. Harry Bucklee (chief), Fred Sylvas, Geo. Funston, Wm. Pittfield, K. Miller, F. Craine.

Night checks: W. Smart (chief), E. Byron, F. Halliman, I. Brazil.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

WESTERN UNION.

"Deacon" Smith has been appointed on the night force and assigned to the first New York wire, vice J. J. Hannon, who has gone to the Boston Globe.

F. J. Sullivan succeeded "Deacon" Smith, Edward Paine, who has been recently appointed to an all-night trick, taking Mr. Sullivan's place and Nathaniel Goodwin Mr. Paine's.

Mr. Thomas Lawrence, from Superintendent Roche's office, has resigned to accept a position as manager for the Metropolitan Stock Exchange, Brockton, Mass. Samuel Tracy, who has been working on Manager Henderson's desk, is filling in Mr. Lawrence's place temporarily and Mr. Buzzell vice Mr. Tracy.

The Telegraphers' Savings and Purchasing Association of Boston, Mass., which is organized on the same lines as a similar institution in Washington, lately declared an 18 per cent. semi-annual dividend. Mr. Frank T. Viles is the president.

CINCINNATI, O., NOTES.

A son has been born to Mr. James Pigman.

R. D. E. Rowe, formerly of Pittsburg, Pa., now a resident of Newport, Ky., was a recent visitor.

Frank Duffy has left the Murphy Brokerage Company, to take a position with the Odell Broker Company.

Martin Cook has accepted a position with the Murphy Brokerage Company of this city.

William Lukens is back again to work after an operation having been performed for appendicitis.

J. Van Cullen Jones, the old timer, well known throughout the country, is lying dangerously ill in this city from an attack of pneumonia.

George D. Holbrook has left here to engage in commercial business at Savannah, Ga.

Harry Horn, late of the St. Louis Globe-Democrat telegraph department, but for some time engaged in the brokerage business at Vincennes, Ind., and Louisville, Ky., made a flying visit to the city a few days since. He was called to Dayton, Ohio, by the sudden death of his father. Mr. Horn will locate in New York at an early day and make that his home in future.

The annual meeting and banquet of the Morse Mutual Benefit Association to be held in the early part of January promises to be of unusual interest. Some very important matters will be brought before the meeting and possibly some radical changes made in the constitution and by-laws.

PHILADELPHIA, PA.

My motto—Honorable Dealing. D. A. Mahoney, Special Representative, FAY-SHO TYPEWRITER. Main office, W. U. Tel. Co., Philadelphia.

SPECIALTIES.—Rebuilt Fay-Sho, Remington, Smith, and Jewett "Mills." \$40 to \$50. Send for telegraphers' special prices and terms. Discount to members O. R. T. Agent for Alexander Word Register.

WESTERN UNION.

Mr. Frank E. Maize, president of the Electrical Aid Society and well known to the fraternity at large, has received a well-merited Christmas gift in the shape of a promotion to be assistant manager in the city Electrical bureau, of which he has been a member for some years.

Thos. J. Fahy, a well known old timer in the employ of J. B. Fleischman & Co., died recently.

Deafness Cannot be Cured.

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube is inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever; nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free.

F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

Hall's Family Pills are the best.

The news of his death was a shock to many friends.

As we write, another old timer, Joseph Bradley, is lying at death's door.

POSTAL.

Mrs. C. W. Power was made very ill in consequence of vaccination and had to remain at home.

Chief Operator C. A. Stimpson was absent for a number of days superintending the opening of new offices in Delaware and Maryland.

The office check boys and girls both day and night workers, were gladdened by liberal donations made by the operators for their Christmas cheer.

The holiday season did not pass by very propitiously for Robert Mecredy of the Commercial Exchange office; he encountered his old enemy, the gout, which held him in its clutches the greater part of the time.

The following changes have recently been effected in the Delaware-Maryland district: Mr. E. H. Bacon, assistant train dispatcher at Salisbury, Md., has resigned to accept the managership of our office at Seaford, Del., vice G. R. Moffitt, resigned.

Mr. Frank Ulman, formerly messenger at Salisbury, has, by dint of energy and persistency, so qualified himself as to be considered a worthy successor of Assistant Train Dispatcher Bacon, to which position he has been appointed.

PITTSBURG, PA., POSTAL.

With the passing of the old year, another merry Christmas has vanished. We had the usual half holiday, and the check girls and boys were remembered by the force. Judging from the smiles and satisfied looks which flitted on their countenances before and after the day of days, all fared well, both as givers and recipients of the compliments of the season.

We now have two bonus circuits, and they are manned by good, reliable men—Frank C. Barr and H. W. Watterson on New York, and E. M. Love and L. R. Kerins on Chicago.

Mr. A. B. Lafferty has returned to his desk after a spell of sickness.

Mr. A. M. Smith, chief operator, who had been confined to his room with a severe cold, is again around and his return was pleasing to the force.

Resignations: M. L. Swinger and T. M. Wilson.

Arrivals: H. W. Watterson and F. W. Powers.

KANSAS CITY, MO., WESTERN UNION.

John Dowd is the happy father of a son.

Frank Howe is temporarily upon the retired list, having sustained a dislocated shoulder, the result of a street car collision.

Our sympathies go out to Frank McCarroll in the death of his father.

Wm. Exley, of the Chicago Western Union office, was recently renewing acquaintances among us after a lapse of nearly twelve years. Mr. Fred Lesem, of Chicago, and Harry Lesem and wife, of St. Paul, were also recent visitors, having been called here on account of the serious illness of their father, Mr. Louis Lesem.

Among recent arrivals we note the following: Miss Alice M. Depue, from Omaha, Neb.; Mary M.

McGinnis, from the Postal, this city; Earl Hulse, Alfred T. Hickey, Floyd A. Grace, Ft. Smith, Ark.; Edw. R. Wakefield, Joplin, Mo.; Chas. W. Clowes, Colorado Springs, Col.; Burt L. Dunbar, Chas. H. Hanson, C. C. Comstock and Mrs. L. R. Hart.

Departures—E. R. McLaughlin, to Hot Springs, Ark., Western Union. Frank M. Meisburger resigned to accept position in the Postal service in this city.

Mr. T. M. A. Haston having grown tired of the hardships of a postman's life, has returned to the key in this office.

WACO, TEX., WESTERN UNION.

Mr. L. G. Hamilton, formerly of the Beaumont, and more recently of the St. Louis, Mo., Postal offices, relieved Mrs. Eva Boutz of this office, who spent the holidays at Beaumont, Texas.

Mrs. E. H. Rogers, of The Associated Press, has been transferred from the Times-Herald, of this city, to the Express at San Antonio, Tex.

Marconi Receives a Signal Across the Ocean.

The wonderful success of Marconi, the Italian scientist, in transmitting a signal by wireless telegraphy 1,800 miles across the Atlantic ocean, from Cornwall, England, to Newfoundland, caused a profound sensation in all parts of the world. Many electrical experts doubted Marconi's claim that he had actually received the letter "S," which is the simplest one in the Morse alphabet to transmit, and for that reason is one that could easily be produced on a sensitive instrument by atmospheric current. Unfortunately these interesting experiments, which looked so hopeful, were suddenly brought to an end by the action of the Anglo-American Telegraph Company, which exercised its right of its exclusive grant of a telegraph monopoly in the colony of Newfoundland in serving notice upon Marconi through its attorneys enjoining further experiments in wireless telegraphy.

The communication from the telegraph company's solicitors ran thus:

"Sir: We are instructed by the Anglo-American Telegraph Company that you are at present in this colony engaged in the work of telegraphic communication and that you have appliances erected within this colony to carry on said work.

On behalf of the Anglo-American Telegraph Company we hereby give you notice that the sole and exclusive right to operate and construct any system or means by which telegraphic communication is brought about from any place or places in this colony or within the jurisdiction of the government of the colony to any place or places outside the colony is owned and possessed by them. Consequently the work that you are now at present engaged in, within the colony is in direct violation of the rights and privileges of our clients.

Unless we receive an intimation from you during the day that you will not proceed any further with the work you are engaged in, and will remove the appliances erected for the purposes of telegraphic communication, legal proceedings will be instituted to restrain you from the further prosecution of

your work and for any damages our clients may sustain or have sustained.

And we further give you notice that our clients will hold you responsible for any loss or damage sustained by reason of your trespass upon their rights."

Having read this threatening letter, Marconi delivered this utterance:

"The world must have my invention. Who will oppose it?"

Upon receipt of this letter Signor Marconi wrote to the Anglo-American Company saying he did not wish to interfere with its rights, and that he was about to remove his apparatus. The Anglo-American Company then sent its second letter. This letter was received after the press of Great Britain and the United States had pronounced upon the attitude of the Anglo-American Company as disclosed by its first letter. In its second letter the company offered to consider proposals for a compromise. This led to the opening of negotiations which are now in progress in London between the Anglo-American and the Marconi companies.

Due allowance being made for the marvelous rapidity with which science progresses in these days, and the fact being recalled that only fifty years ago the world was laughing at transatlantic cable projects, and commercial electric light and power had then hardly been dreamed of, the more conservative among scientific men will be inclined to agree with a telegraph expert, who recently said:

"As an experiment, Marconi's achievement was magnificent. Personally, however, I must question the practicability of the system. I think that foreign currents of electricity will make the perfection of his plan well-nigh impossible. Frequently in sending messages over cables we are greatly troubled by these strange currents. If we have difficulty in transmitting through regular channels, it seems to me Marconi will meet insuperable obstacles in attempting to overcome these same difficulties. A flash of lightning five hundred miles away will affect signals; what would the same flash do with a message in the air? I appreciate that Marconi's system is only in the embryonic stage, and for that reason one should not criticise it harshly. As I have said, Marconi has made a beautiful experiment. But I shan't be satisfied until I hear that something more than the letter 'S' has been transmitted across the ocean."

After the actual outcome of the Cornwall-Newfoundland experiments, the methods employed therein are likely to command attention from both the electrician and the unscientific public. It will be noticed, for instance, that Marconi did not maintain the ratio once deemed necessary between the height of his vertical wire and the distance covered. The elevation of this part of the apparatus at Poldhu, England, was apparently no greater than that needed for merely crossing the English Channel. The curvature of the earth does not now seem to be so formidable an obstacle as it was once believed to be. There is a bulge over one hundred miles high between Cornwall and Newfoundland.

Again, one great essential to increasing the range of Hertz waves is to use more power in generating them. Like light and heat, these vibrations diminish rapidly in intensity as they spread out from the point at which they emanate. If after a message has been transmitted two miles it is sought to send one five, the energy required for the second test would bear the numerical relation of twenty-five to four to that employed in the first. In other words, the strength of the impulse decreases as "the square of the distance." Early in the year Marconi covered nearly four hundred miles by his system. To reach 1,800 miles he would need to create a disturbance more than twenty times as violent.

The cost of doing so at present is far from trifling. Marconi talks about spending \$60,000 on his station in Newfoundland. Eventually, perhaps, he or some one else may simplify the requisite apparatus and reduce the expense. But Hertz wave telegraphy will hardly compete with land lines, if what is saved in wire is lost in the equipment of a station. Besides, it must be remembered that at present fewer words a minute can be sent by the new system than the old. The chief advantage to be derived, apparently, will be in communicating with vessels at sea. Submarine cables may be costly affairs, but they will remain in service for many years yet.

Personal Mention.

Signor Marconi will visit New York some time in January, when he will be married to Miss Josephine B. Holman.

Mr. George Clapperton, traffic manager of the Commercial Cable Company, New York, arrived from Europe on December 21.

Mr. E. C. Bradley, vice-president of the Postal Telegraph-Cable Company, New York, is making a business trip to the Pacific Coast.

Mr. Thomas F. Clark, vice-president of the Western Union Telegraph Company, New York, spent the holidays at St. Augustine, Fla., where Mrs. Clark has for some time past been visiting.

Col. A. B. Chandler, chairman of the Board of Directors, Postal Telegraph-Cable Company, New York, has been confined to his home in Brooklyn by illness, but he expects soon to be able to return to his office.

Mr. Charles P. Bruch, assistant general manager of the Postal Telegraph-Cable Company, New York, distributes during the holidays hundreds of presents for his company, in the shape of complimentary franks.

Mr. Thomas A. Edison, the telegrapher, inventor and all-around wizard, has been reported of late as seriously ill. The report is not credited by those who know him, as they realize he has no inclination to experiment with time-consuming sickness.

Mr. Charles A. Tinker, general superintendent of the Western Union Telegraph Company, New York, has returned from North Carolina, where he spent three weeks hunting and fishing, which greatly benefited his health. Mr. Tinker proved

himself to be an excellent shot, for on the first day's hunt he brought down a fine deer.

Mr. John H. Smart, superintendent of the Commercial Cable Company of New York, who has been acting traffic manager of the same interests for the past four months in the absence of Mr. George Clapperton, at 253 Broadway, has returned to his former office at 20 Broad street.

Mr. Henry C. Payne of Milwaukee, Wis., has become Postmaster-General in President Roosevelt's Cabinet. Mr. Payne has been closely identified with electrical pursuits for many years. He is an expert telegrapher, having mastered the art at an early age, but he never engaged in it for any length of time.

Colonel Robert C. Clowry of Chicago, vice-president and general superintendent of the Western Union Telegraph Company, was in a train wreck on the Oregon Railway and Navigation Company's road near Dallas, Ore., on December 6. His private car was attached to the train, and was the only one that did not leave the track. Neither Colonel Clowry nor any of the passengers were injured. With Col. Clowry at the time of the accident were Mr. Frank Jaynes, superintendent at San Francisco, and Mr. C. H. Bristol, general superintendent of construction, Chicago, Ill. As a result of Colonel Clowry's visit to the Pacific Coast, the wire facilities of the company will be at once greatly increased. The great development of that section of the country, particularly the portion covered by the States of Oregon and Washington, makes it absolutely necessary to provide many additional wires in all directions in order to carry the rapidly increasing business.

To Push the Pacific Cable.

In a recent interview George G. Ward, vice-president and general manager of the Commercial Cable Company, said that the possibility of legislation by Congress would in nowise interfere with the construction of the Pacific cable, work on which has already begun. Several cable bills have been introduced in Congress, providing for Government construction and control of a cable between the Pacific coast and the Orient, or for private construction under a subsidy from the Government. Mr. Ward advanced a number of reasons why, in his opinion, it would be unwise for the United States to undertake the construction of the cable, both from a practical as well as an economic point of view. The company which is now going ahead with the work, he said, has complied with all requirements and asks no aid from the

Government, but on the contrary assumes all responsibility.

"It would be inadvisable for the Government," he said, "to undertake to construct a cable. In the first place, there is the matter of expense, not only of laying the cable, but also of keeping it in repair. It is doubtful if the Government could make as complete working arrangements with connecting lines so as to give complete service, as could a private enterprise, for diplomatic and business difficulties would quite naturally surround such a project if undertaken by the Government. It should be borne in mind that the Commercial Pacific Cable Company will be obliged to make arrangements with existing companies for business between various points in the Orient and Europe. This country could hardly expect to secure landing privileges or concessions where exclusive grants have already been given in foreign countries, notably Japan, to cable companies now in operation, and it is doubtful if a working arrangement could be made with such companies by this Government looking to any division of the business that these foreign countries now enjoy. No diplomatic difficulties, however, would be in the way of a private corporation making such arrangements. The Commercial Pacific Cable Company assumes all responsibility in the construction and maintenance of the new cable, thereby relieving the Government of any expense whatever, either for construction or operation."

Cuban Telegraph Company Incorporated.

The Cuban Telegraph and Telephone Company, organized with a paid-up capital stock of \$2,000,000 to construct and operate telephone and telegraph lines in Cuba and the West Indies filed articles of incorporation in Trenton, N. J., Dec. 13. The incorporators are Francis C. Prest, Edmund G. Vaughan, Edgar Park and William J. Patterson.

YOUR INCOME

is the motive power that keeps the domestic machinery in motion. When it stops, those who are dependent upon you must suffer. Provide against that by membership in the

Telegraphers' Mutual Benefit Association

Insurance, \$500, \$1,000 or \$1,500

RESERVE FUND \$190,000, annual income from which pays all expenses as well as several death claims

ADDRESS ANY AGENT, OR

M. J. O'LEARY, Sec'y, P. O. Box 510, NEW YORK

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price \$2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 253 Broadway New York.

IMPORTANT TO YOU

J. S. TOWNSEND—The Telegraphers' Jeweler, 1554 Wabash Ave., Chicago, offers any article in his elegant stock at net wholesale prices. A rare opportunity. Any watches or jewelry advertised can be bought at a lower price from this well known firm, J. S. TOWNSEND, 1554 Wabash Ave., Chicago. Our 400-page catalogue sent on application. Agents wanted. Established 1877.

Lockwood's Electricity, Magnetism and Electric Telegraphy. A practical guide for operators. 376 pages. 152 illustrations. Price, \$2.50, expressage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

TELEGRAPH ENGINEERING

TAUGHT BY MAIL

Our Course is not designed to teach telegraph operating, but provides practical operators with just the instruction they need for advancement to and success in the best positions in the commercial or railroad service.

The Course begins at the bottom and is easily mastered by men of little education. It covers thoroughly Mathematics, Mechanics, Principles of Electricity and Magnetism, Electrical Measurements, Batteries, The Morse System, Sources of Energy, Properties of Currents, Repeaters, Duplex, Quadruplex, Multiplex, Submarine and Wireless Telegraphy; Simultaneous Telegraphy and Telephony, Automatic Telegraphy, Printing Telegraph, Telegraph Line Construction and Testing, Cable and Conduit Work. Everything clearly explained and fully illustrated. No ambitious telegrapher should waste his spare time when we offer such an opportunity for education and advancement.

Free Electrical Outfit

Those enrolling now will be furnished with a free experimental and practical testing outfit, valued at \$10.45, as soon as they reach the instruction in the Principles of Electricity and Magnetism.

We Teach by Mail

Mechanical, Steam, Electrical, Civil, Mining, Telephone and Telegraph Engineering, Shop and Foundry Practice, Mechanical Drawing, Architecture, Plumbing, Sheet Metal Pattern Drafting, Chemistry, Ornamental Design, Lettering, Bookkeeping, Stenography, Teaching, English Branches, Locomotive Running, Electro-therapeutics, German, Spanish, French.

Circular free.
State subject that interests you.

International Correspondence
Schools

Box 883, Scranton, Pa.

THE EDISON PHONOPLEX SYSTEM OF TELEGRAPHY

INSURES CONSTANT COMMUNICATION.

It WORKS through all kinds of trouble and weather.

Are you using it? If not, write to its patrons and ascertain their opinion of it.

SOME USERS OF THE PHONOPLEX SYSTEM:

Western Union Telegraph Co.
Illinois Central R. R. Co.
Boston & Maine Railroad
New York, New Haven & Hartford R. R. Co.
Lehigh Valley R. R. Co.
Central Railroad of New Jersey.
Baltimore & Ohio R. R. Co.
Baltimore & Ohio & Southwestern R. R. Co.
Pennsylvania R. R. Co.
Union Pacific R. R. Co.

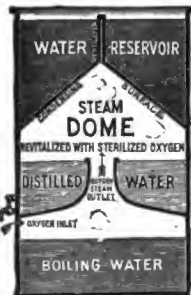
Kansas City, Fort Scott & Memphis R. R. Co.
Kansas City, Council Bluffs & Omaha R. R. Co.
Colorado Midland R. R. Co.
Central of Georgia R. R. Co.
Chicago & Grand Trunk Railway.
Standard Oil Co.
Tide Water Pipe Line.
Atchafalpa, Topeka & Santa Fe R. R. Co.
Southern California Railway Division.
Atlantic & Pacific Division.

Catalogue and Further Information
upon Application.

THOMAS A. EDISON, Orange, N. J.

BURPEE'S SEEDS ARE THE BEST THAT CAN BE GROWN

If you want the choicest vegetables or most beautiful flowers you should read BURPEE'S FARM ANNUAL FOR 1902, so well known as the "Leading American Seed Catalogue." It is mailed FREE to all. Better send your address TO-DAY. W. ATLEE BURPEE & CO., PHILADELPHIA.



SALESMEN AND AGENTS WANTED

BIG WAGES—Our Famous Puritan Water Still, a wonderful invention—not a filter, 22,000 already sold. Demand enormous. Everybody buys. Over the kitchen stove it furnishes plenty of distilled, aerated drinking water, pure, delicious and safe. Only method. Distilled water cures Dyspepsia, Stomach, Bowel, Kidney, Bladder and Heart Troubles; prevents fevers and sickness. Write for Booklet, New Plan, Terms, etc. FREE Harrison Mfg. Co., 421 Harrison Bldg., Cincinnati, O.

PARALYSIS LOCOMOTOR ATAXIA & Nervous Prostration Cured

Dr. CHASE, 221 N. 10th St., Philadelphia, Pa.

The Modern Service of Commercial and Railway Telegraphy (8th Edition, revised and enlarged), by J. P. Abernethy. The theory and practice, including railway station and express service. Arranged in questions and answers. 425 pages, 40 illustrations. Price \$2.00, expressage prepaid. Address John B. Taltavall, The Telegraph Age, 263 Broadway, New York.



TELEPHONES

FOR LONG LINES
SHORT LINES
PRIVATE LINES
EXCHANGE LINES
TOLL LINES

and All Lines of Business.

YOU KNOW THE
KIND:

The STANDARD.

A CRITERION OF
EXCELLENCE.

Standard Telephone & Electric Company
MADISON, WIS.



May I Send You A Book?

I will mail you any book from the list below if you send me your address.

With it I will send you an order on your nearest druggist for six bottles of Dr. Shoop's Restorative. If you think that you need it after reading this book, you are welcome to take it a month at my risk. If it cures, pay your druggist \$5.50. If it fails, I will pay him myself.

This remarkable offer is made after a lifetime's experience. I have learned how to strengthen the inside nerves—those nerves that alone operate every vital organ. I make each organ do its duty by bringing back its nerve power. No case is too difficult. I take the risk in all.

In five years 550,000 people have accepted this offer; and 39 in each 40 paid. They paid because they were cured, for no druggist accepts a penny otherwise. The decision is left with you.

Note that if my Restorative cures, the cost is a trifle. If it fails, it is free. Can you neglect such an offer when 39 out of 40 who write me are cured?

Simply state which book you want, and address
 Dr. Shoop, Box 800,
 Racine, Wis.
 Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

Book No. 1 on Dyspepsia.
 Book No. 2 on the Heart.
 Book No. 3 on the Kidneys.
 Book No. 4 for Women.
 Book No. 5 for Men (sealed).
 Book No. 6 on Rheumatism.

The DISCOVERY of the EDISON
PHONOGRAPH
 Brought happiness
 to thousands.

TRADE MARK.
 Thomas A. Edison
 NATIONAL PHONOGRAPH CO.

Modern times have not produced its equal for amusement and instruction.
 NINE STYLES, from \$10 to \$100.
 Catalogues at all dealers.
NATIONAL PHONOGRAPH COMPANY
 New York Office, 135 Fifth Avenue,
 Chicago Office, 144 Wabash Avenue,
 Foreign Department, 15 Cedar Street, New York.



Why Not "Switch" to President Suspenders

They make hard work easy. Look for "President" on the buckles. Trimmings can not rust. Price 50 cents. Sold everywhere or by mail postpaid.
 C. A. Edgerton Mfg. Co.,
 Box 250, Shirley, Mass.

Phillips' Code.

PHILLIPS'
 CODE
 THE
 STANDARD

Used on all first-class Press, Leased and other Circuits. A new Edition just out. Price \$1.00. Address,

J. B. TALTAVAL, 253 BROADWAY, NEW YORK.

Please mention the Telegraph Age in communicating with advertisers.

Do You Want a Life Income?

You can secure it by purchasing a few acres in a large coffee and rubber plantation in tropical Mexico. I have watched the progress of the clearing and planting of this farm for nearly five years. One acre in rubber will earn more than 100 acres in Iowa, Nebraska or Dakota, and will continue to be greater every year for a period of forty or fifty years. Four years ago wild rubber sold on this plantation for 32c a pound; to-day it is worth \$1.05 a pound.

There are 6,000 acres in the entire plantation. The first 3,000 were sold at \$300 per acre and the last 3,000 at \$350 per acre. Through death, loss of position, or reverses in business, etc., some of these acres are for sale, and in some cases may be had for the same amount as paid in by the purchaser. The party buying one or more of these acres would pay into the Association the amount paid in by the former purchaser, which in some cases would be \$70 to \$90 per acre. The party purchasing would then, during the next three years, pay into the Association the balance due on the contract, making it cost \$300 or \$350, being fully paid up at the end of seven years from the date of the contract. At that date these acres will be worth \$500 to \$700 per acre, and within the next three or four years thereafter they will be worth \$1,000 to \$1,500 per acre and will earn 100 per cent. dividends every year after the seventh year, or \$300 to \$500 per acre each year for a period of upwards of forty years. Rubber plantations have earned three times as much as this per acre and were not scientifically planted, as has been the case with this plantation. This is not speculating; they are simply farmers with twenty years' experience in this line of work.

It costs nothing to investigate. Sign the blank, giving number of acres desired, and mail to address of B. BAILEY, Train Despatcher, Larimore, North Dakota, or B. BAILEY, 1603-100 Washington Street, Chicago, Illinois.

MR. BAILEY, 1603-100 Washington St., Chicago, Ill.

Dear Sir:—If you have 1, 2 or 5 acres or shares for sale in your rubber plantation, as per your advertisement, will you kindly give me full particulars and the amount necessary to be paid?

(NAME).....

(ADDRESS).....

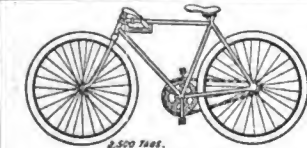
IF YOU DESIRE ELECTRICAL OR TELEGRAPH BOOKS,

SEND YOUR ORDERS TO

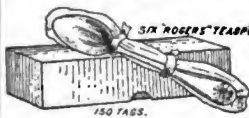
Telegraph Age, 253 Broadway, N. Y.

TRADE MARK STICKERS FROM FIVE BROTHERS' PIPE SMOKING TOBACCO ARE OF EQUAL VALUE WITH TAGS IN SECURING PRESENTS.

FREE FOR TOBACCO TAGS

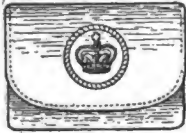
NOV. 30TH 1902.NOV. 30TH 1902.

2,500 TAGS.



150 TAGS.

RUBBER POUCH FOR PLUG TOBACCO



120 TAGS.



TOOL HANDLE AND TOOL

140 TAGS.



600 TAGS.



TAPE MEASURE.

60 TAGS.

50 FEET.



25 TAGS.



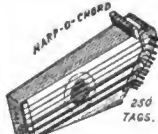
SPLIT BAMBOO FISHING ROD

240 TAGS.



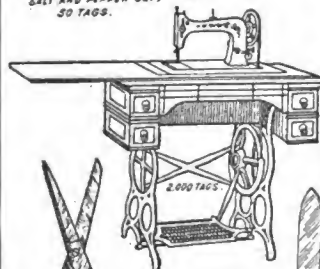
SALT AND PEPPER SET.

50 TAGS.



HAPPY-D-CHORD

250 TAGS.



2,000 TAGS.



25 TAGS.

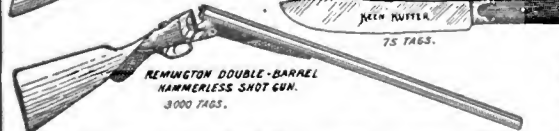


25 TAGS.



MARLIN REPEATING SHOT GUN.

2,000 TAGS.



REMINGTON DOUBLE-BARREL HAMMERLESS SHOT GUN.

3,000 TAGS.



75 TAGS.



100 TAGS.



MARLIN MAGAZINE RIFLE

30/30 CALIBER

2,000 TAGS.



MARLIN MAGAZINE RIFLE, 16 SHOT, 22 CALIBER

1,800 TAGS.

FROM
"STAR"
"HORSE SHOE"
"SPEARHEAD"
"STANDARD NAVY"
"J.T."
"PIPER HEIDSIECK"
"BOOT JACK"
"DRUMMOND" NATURAL LEAF
"OLD PEACH & HONEY"
"NOBBY SPUN ROLL"
"JOLLY TAR"
"E. RICE GREENVILLE"
"GRANGER TWIST"

2 Granger Twist Tags being equal to one of others mentioned.
"GOOD LUCK," "CROSS BOW," "OLD HONESTY,"
"MASTER WORKMAN," "SICKLE,"
"BRANDYWINE," "PLANET," "NEPTUNE,"
"RAZOR," "TENNESSEE CROSS TIE,"
"OLE VARGINY."

Red Tin Tags from Tinsley's 16 oz. Natural Leaf and
 W. N. Tinsley's picture tin tags are also good for Presents.
 TAGS MAY BE ASSORTED IN SECURING PRESENTS.

OUR NEW ILLUSTRATED CATALOGUE OF PRESENTS FOR 1902

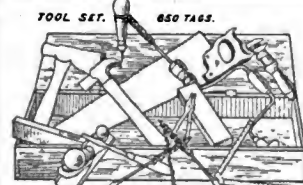
Includes many articles not shown here. It contains the most
 attractive List of Presents ever offered for Tags, and will be
 sent by mail on receipt of postage—2 cents.

Our offer of Presents for Tags will expire Nov. 30th, 1902.
 CONTINENTAL TOBACCO CO.

Write your name and address plainly on outside of package
 containing tags, and forward tags by registered mail or express
 prepaid. Be sure to have your package securely wrapped, so
 that tags will not be lost in transit.

Send tags and requests for Presents (also requests for Cata-
 logues) to

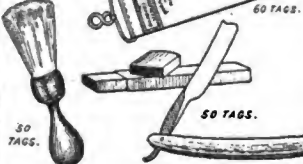
C. Hy. BROWN,
 4241 Folsom Ave.,
 ST. LOUIS, MO.



TOOL SET. 650 TAGS.



RAZOR STRAP.

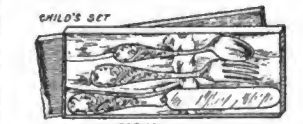


30 TAGS.

50 TAGS.



FOUNTAIN PEN. 100 TAGS.



CHILD'S SET

25 TAGS.



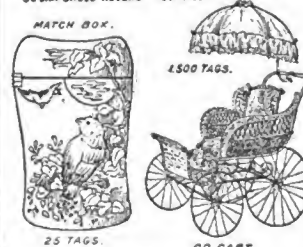
200 TAGS

NICKEL WATCH, STEM WIND AND SET

60 TAGS.



SUGAR SHELL "ROSE" 60 TAGS.



MATCH BOX.

25 TAGS.



1,500 TAGS.

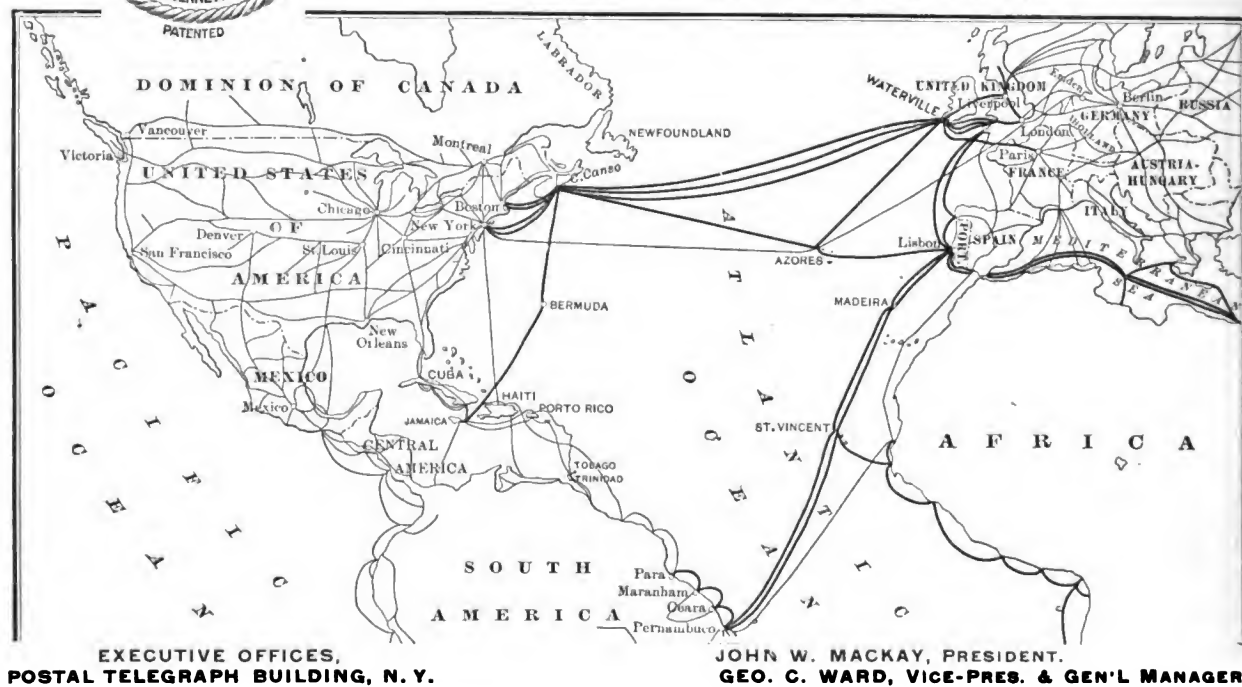
60 CART.

Commercial Cable Co.



CONNECTIONS:

POSTAL TELEGRAPH-CABLE COMPANY,
CANADIAN PACIFIC RAILWAY TELEGRAPHS,
HALIFAX & BERMUDAS CABLE COMPANY,
DIRECT WEST INDIA CABLE COMPANY,
DEUTSCH-ATLANTISCHE TELEGRAPHEN-GESELLSCHAFT
(GERMAN ATLANTIC CABLE COMPANY).



EXECUTIVE OFFICES,
POSTAL TELEGRAPH BUILDING, N. Y.

JOHN W. MACKAY, PRESIDENT.
GEO. C. WARD, VICE-PRES. & GEN'L MANAGER

POSTAL TELEGRAPH-CABLE COMPANY

... EXECUTIVE OFFICES, ...

253 BROADWAY,

New York, October 1st, 1900.

TO OUR PATRONS:

Persistent rumors are in circulation regarding a pending combination of the Postal Telegraph-Cable Company, Commercial Cable Company, Western Union Telegraph Company, and American Bell Telephone Company with the Telephone, Telegraph and Cable Company of America.

The officers of the Postal Telegraph-Cable Company and of the Commercial Cable Company deny emphatically that either company is contemplating any such combination and state that the control of the Postal Telegraph-Cable Company and of the Commercial Cable Company is not for sale.

Very respectfully,

POSTAL TELEGRAPH-CABLE COMPANY

By

WM. H. BAKER,
VICE-PRES. AND GEN'L MANAGER.

Important Announcement

JUST WHAT TELEGRAPHERS HAVE LONG WANTED

Ready About March 1

SEND IN YOUR ORDERS NOW

A NEW, revised and greatly enlarged edition of the popular

Pocket Edition of Diagrams

AND

COMPLETE INFORMATION FOR TELEGRAPH ENGINEERS
AND STUDENTS

By WILLIS H JONES

The Electrical Editor of Telegraph Age



BOUND IN LEATHER; ABOUT
250 PAGES

A Telegraphic Classic; The Standard of the World

THIS VOLUME will be the finest, most complete and comprehensive book on the telegraph ever published. It is colloquial, simple and clear in style, copious in the amount and diversity of practical information furnished,

SPLENDIDLY ILLUSTRATED

and will be welcomed by every student, operator, official and engineer.

NO SUCH THOROUGH TREATMENT of the subject of the telegraph, and clearly explaining the equipment of a modern telegraph office, has ever before been accomplished.

IN ADDITION TO A VAST AMOUNT of other material it will contain the most valuable part of the matter appertaining to electricity, storage batteries, the duplex, the quadruplex, wheatstone system, the principal types of repeaters and other telegraph apparatus that Mr. Jones has written for TELEGRAPH AGE during the past three years.

THIS WORK COVERS the entire field of a practical telegraph course, and the subjects are treated with a conviction and simplicity, wholly free from entangling technicalities, such as to render the volume one of delight and absorbing interest.

A STRONG AND VALUABLE FEATURE of the book lies in the diagrams, clearly drawn and of large size, which show the apparatus of the systems of both the WESTERN UNION TELEGRAPH COMPANY and of the POSTAL TELEGRAPH-CABLE COMPANY brought up to date. Each apparatus described, in addition to the theoretical illustration, will be accompanied by a diagram of an "actual binding post connection," taken from the blue print, something that all linemen especially will thoroughly appreciate.

There is Sure to be a Big Demand

FOR THIS GREAT AND TIMELY WORK, AND OUR AGENTS AND FRIENDS EVERYWHERE SHOULD LOSE NO TIME IN FILING THEIR ORDERS. ALL ORDERS WILL BE FILLED IN THE SEQUENCE RECEIVED.

Price, \$1.50

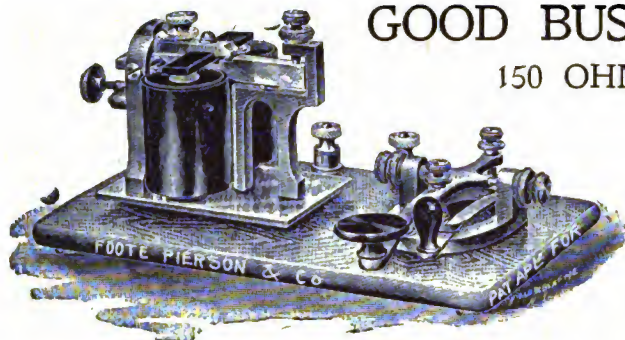
EXPRESS CHARGES PREPAID



ADDRESS

J. B. TALTAVAL, TELEGRAPH AGE

253 BROADWAY, NEW YORK



GOOD BUSINESS IF YOU USE OUR 150 OHM MAIN LINE TELEGRAPH SETS

It can be quickly adjusted to meet any line conditions in any kind of weather. If you want to use it outside for Line Testing, etc. order a leather carrying case with shoulder strap.

FOOTE, PIERSON & CO.
NEW YORK
Telegraph Instruments our Specialty

Gold and Stock Life Insurance Association

TWENTY-FIFTH YEAR

For Telegraphers and Others in Electrical Service.

INITIATION FEE, \$1.00; DUES, 50 Cents per Month; INSURANCE, \$500.00, in payments of \$50.00 per Month for Ten Consecutive Months.

WM. J. DEALY, Secretary, 195 BROADWAY, NEW YORK.

Received Only Medals Awarded World's Fair, Chicago, 1893.

COVERING INSULATED WIRES AND CABLES

FOR
Aerial, Underground, - - -
Submarine and Interior Use.

KERITE TAPE.

Catalogues, Samples and Prices on Application.



TRADE MARK.

FOR
Telephone, Telegraph, Power and Lighting.

W. R. BRIXEY,
MANUFACTURER.

203 BROADWAY, NEW YORK.

CALIFORNIA ELECTRIC WORKS,
San Francisco, Cal.



Telegraph Operators
will find that the

**NUMBER FOUR YOST
LATEST MODEL** - -

contains many improvements
that are of special advantage
in their work.

Yost Writing Machine Co.,

No. 316 Broadway, New York.

No. 50 Holborn Viaduct, London.

THE WESTON STANDARD VOLTMETERS AND AMMETERS.



The Weston Standard Mil-Ammeters and Ammeters are infinitely superior to galvanometers for tests of current strength on lines and for tests of Relays, Sounders and other Telegraphic Apparatus. They are direct-reading, dead-beat, and are practically uninfluenced by the earth's field. No constants are required, and with careful use there is no necessity for recalibration. The Weston Standard Voltmeters are the very best practical instruments obtainable for determining the electro-motive force of single cells, or series of cells, or for ascertaining the voltage on lines. By the proper use of these instruments all tests of resistance, current, strength and electro-motive force required in telegraphic practice can be made with great ease and accuracy. Correspondence solicited.

WESTON ELECTRICAL INSTRUMENT COMPANY,
WAVERLY PARK, NEWARK, N. J.

BERLIN: European Weston Electrical Instrument Co., Ritterstrasse No. 88.
LONDON: Elliott Bros., No. 101 St. Martin's Lane.

PLEASE MENTION

THE TELEGRAPH AGE

WHEN WRITING TO ADVERTISERS.

TELEGRAPH AGE.

A SEMI-MONTHLY JOURNAL DEVOTED TO TELEGRAPHY.

Single Copies, 10 cts.

ESTABLISHED 1883.

\$1.50 per year.

Vol. XIX.—No. 13.

NEW YORK, JULY 1, 1902.

Whole No. 459.



NEW STANDARD DRY CELLS. STANDARD OF THE U. S. NAVY AND THE WORLD.

The price is as low as any; durability, FOUR to ONE over any other make. When you use them once you will want no other. NECKTIE PIN outfit by mail \$1.00.

WILLIAM ROCHE, Inventor and
Sole Manfr.,
42 Vesey St., New York.

Put Alexander's Word-Counter

on your machine to-day. You will be a better operator to-morrow. It will save you lots of work and worry, and silently demand a better salary for the improved service you will give.

JESSE ALEXANDER, 195 Broadway, New York

1889

PARIS EXPOSITION MEDAL FOR
RUBBER INSULATION.



1893

WORLD'S FAIR MEDAL FOR
RUBBER INSULATION

THE STANDARD FOR RUBBER INSULATION.

SOLE
MANUFACTURERS OF

Okonite Wires, Okonite Tape, Manson Tape, Candee Weatherproof Wires

THE OKONITE CO., LTD., 253 BROADWAY, NEW YORK.

WILLARD L. CANDEE, } Managers.
E. DURANT CHEEVER, }

WRITE FOR PRICES.

GEO. T. MANSON, Gen'l Supt.
W. H. HODGINS, Secy.

**Good Work
Durability
Simplicity
Speed**

ARE THE

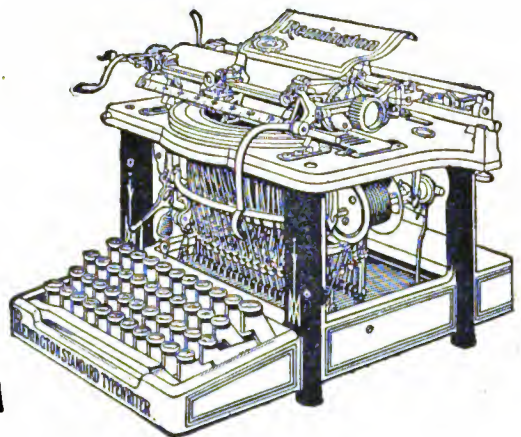
Four Pillars of Strength

which Support the

**Remington
Typewriter**

YOU WILL FIND THEM IN EVERY REMINGTON

Wyckoff, Seamans & Benedict, 327 Broadway, New York.



Phillips' Code.

THE STANDARD FOR YEARS.

NEW AND REVISED EDITION NOW READY.

THIS FAVORITE AND THOROUGHLY TESTED method of shorthand arranged for TELEGRAPHIC PURPOSES and for the rapid transmission of Press Reports, has been brought up-to-date by MR. A. P. VELIE, a gentleman for many years identified with The Associated Press, New York, thoroughly competent for his task, and is *pronounced complete* in every particular.

BETTER THAN EVER this famous work will meet all requirements and be of indispensable value to every operator.

WITH THE NECESSARY ADDITIONS it now contains, the volume presents a compendium of telegraphic abbreviations of the utmost practical worth.

AGENTS FIND THIS BOOK A QUICK SELLER.

PRICE, \$ 1.00.

CARRIAGE PREPAID.

Address orders to **J. B. TALTAVALL,**

TELEGRAPH AGE,

253 BROADWAY, NEW YORK

EVERY GOOD OPERATOR

SHOULD HAVE A GOOD WORD COUNTER
THEY SAVE TIME AND TROUBLE

INVALUABLE BECAUSE THEY ARE RELIABLE

We Can Supply Either the Hudson or Alexander

They record the exact number of words written upon any writing machine. They are an ornament to any typewriter. Simple and durable. Cannot get out of order. Unlimited counting capacity. Can be instantly reset. Warranted accurate.

Mailed to any Address upon Receipt of \$3.00

In ordering state what machine you use, as attachments differ. Remit by express or post office money order to

JOHN B. TALTAVALL, Telegraph Age, 253 Broadway, N. Y.

Taltavall's Telegraphers of To-day.

Descriptive, historical and biographical. 355 pages and 700 engravings of the prominent telegraph people. Price, \$5.00, expressage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Thom & Jones' Telegraphic Connections; 300 pages, illustrated by 20 plates, with circuits distinguished by three different colors. Price, \$1.50, postage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

"The Standard Work
on Telegraphy" - -

AMERICAN TELEGRAPHY:

SYSTEMS,
APPARATUS,
OPERATION.

450 Diagrams, 575 Pages, 34 Chapters.

By **WILLIAM MAVER, Jr.**

Bound in Cloth, - - - - \$3.50
Sent, express charges prepaid, to any part
of the world upon receipt of price.

J. B. TALTAVALL,
Telegraph Age,
253 Broadway, New York.

Any electrical or telegraph book
published for sale by
TELEGRAPH AGE,
253 Broadway, New York.

NOW IS THE TIME TO
SUBSCRIBE FOR :: ::

TELEGRAPH AGE

TERMS: \$1.50 PER YEAR.

Address **J. B. TALTAVALL, Publisher, 253 BROADWAY, NEW YORK.**

TRADE MARK

SPECIAL TYPES OF THE

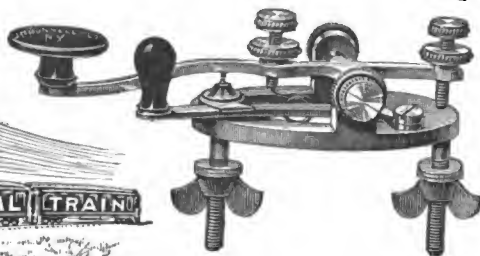
"Chloride Accumulator"

REGISTERED SEPTEMBER 11, 1894.

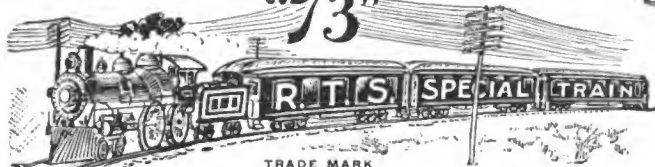
"Chloride Accumulator" for Telegraph Service

THE ELECTRIC STORAGE BATTERY CO.ALLEGHENY AVE. and 19th ST.,
PHILADELPHIA, PA.SALES OFFICES:
New York, 100 Broadway.
Boston, 60 State St.
Chicago, Marquette Bldg.Baltimore, Continental Trust Bldg.
St. Louis, Walnwright Bldg.
San Francisco, Nevada Block.Cleveland, New England Bldg.
Philadelphia, Allegheny Ave., and 19th St.
Detroit, Michigan Electric Co.

Havana, Cuba, G. F. Greenwood, Mgr., 34 Empedrado St.

Established
1879**J. H. BUNNELL & CO.** (Incorporated)Telegraph Instruments and Electrical
Supplies in General

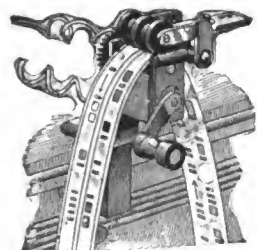
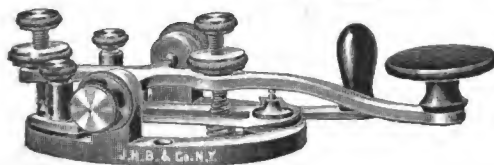
"73"



TRADE MARK

SOLE MANUFACTURERS OF THE GENUINE

J. H. Bunnell & Co.'s Standard Instruments—Steel Lever Keys, Relays of the various well-known designs—such as Box Sounding, Polarized, Pony and Pocket forms. The latest improved types of Main Line Sounders, Giant local Sounders, Repeaters, Switches, Lightning Arresters, Bells, Batteries, Burglar Alarms, Annunciators, etc. A full line of Electric Light and Power Apparatus and Supplies.

**Operators Wanted** to act as agents for the sale of the **Audible Alphabet**
the latest and best device for self instruction in learning telegraph operating. Send for circular.Note well the exact name and address and make all Orders, Checks, Drafts, etc.
payable to**J. H. BUNNELL & CO.**

20 Park Place, New York.

THE AUDIBLE ALPHABET P. O. BOX 1286.

CATALOGUES FREE.

MADE \$105 THE FIRST MONTH

G. GRAY & CO., Plating Works, A Miami Bldg., Cincinnati, O.

W. R. OSTRANDER & CO.MANUFACTURERS
OF...Speaking-Tube Goods
Electric Bells
Annunciators
General Electric Supplies

22 DEY STREET, NEW YORK

SEND FOR CATALOGUE

Barclay's Paralysis Cure

Strengthens the relaxed cords of the hand, wrist and arm. Cures Telegraphers' and other Writers' Paralysis and Cramps of many years' standing. Stiff joints caused by accident cured. All Telegraphers and Writers should have one.

THIS IS ONE OF MANY TESTIMONIALS
NOW ON HAND.

Ft. Atkinson, Wis., July 18, '95.

R. Barclay:

Dear Sir:—I commenced using your valuable Exerciser about two months ago, and have received such great benefit from its use that I consider it necessary to write you and say what it has done for me. If I had not used this instrument, I would have been obliged to give up the telegraph service, as I was in such a condition that nearly every one complained of my sending. I can heartily recommend your valuable remedy to all afflicted with paralysis, and if I know of any one in need of it I shall do all I can and persuade their trying it. Yours very truly,

OTTO REHM, Opr. C. & N. W. R'y.
Sent to any address, postage prepaid, together with full instructions, \$3.15. Address
ROBERT BARCLAY, Green Bay, Wis.**HUDSON'S WORD REGISTER**

A simple, accurate device for counting the words written upon the typewriter. It is easily read, instantly set, and covers both message and special work. Price by mail, with full directions for attaching and operating, \$3.00. State what machine you use. Circular free. Address

GEO. E. HUDSON,
Sheridanville, Pa**THE PHILLIPS CODE.**

PRICE, \$1.00.

A thoroughly tested method of Shorthand, arranged for Telegraphic Purposes and contemplating the rapid transmission of press reports, also intended to be used as an easily acquired method for General Newspaper and Court Reporting.

Address,

J. B. TALTAVALL,
TELEGRAPH AGE, 253 BROADWAY
NEW YORK.

Any Electrical or Telegraph Book published for sale by TELEGRAPH AGE, 253 Broadway, New York.

NOW READY FOR DELIVERY

Pocket Edition of Diagrams

 AND

COMPLETE INFORMATION FOR TELEGRAPH ENGINEERS
AND STUDENTS

By **WILLIS H. JONES**
The Electrical Editor of Telegraph Age



BOUND IN FLEXIBLE LEATHER;
260 PAGES

A Telegraphic Classic; The Standard of the World

THIS VOLUME is the finest, most complete and comprehensive book on the telegraph ever published. It is colloquial, simple and clear in style, copious in the amount and diversity of practical information furnished,

IT IS SPLENDIDLY ILLUSTRATED

and will be welcomed by every student, operator, official and engineer.

NO SUCH THOROUGH TREATMENT of the subject of the telegraph, clearly explaining the equipment of a modern telegraph office, has ever before been accomplished.

IN ADDITION TO A VAST AMOUNT of other material it contains the most valuable part of the matter appertaining to electricity, storage batteries, the duplex, the quadruplex, wheatstone system, the principal types of repeaters and other telegraph apparatus that Mr. Jones has written for **TELEGRAPH AGE** during the past three years.

THIS WORK COVERS the entire field of a practical telegraph course, and the subjects are treated with a conviction and simplicity, wholly free from entangling technicalities, such as to render the volume one of delight and absorbing interest.

A STRONG AND VALUABLE FEATURE of the book lies in the diagrams, clearly drawn and of large size, which show the apparatus of the systems of both the **WESTERN UNION TELEGRAPH COMPANY** and of the **POSTAL TELEGRAPH-CABLE COMPANY** brought up to date. Each apparatus described, in addition to the theoretical illustration, are accompanied by a diagram of an "actual binding post connection," taken from the blue print, something that all linemen especially will thoroughly appreciate.

THE TELEPHONE AND SIMULTANEOUS TELEPHONY AND TELEGRAPHY is explained in a particularly clear manner—just the thing for those possessing no knowledge whatever of the subjects.

There is An Enormous Demand

FOR THIS GREAT AND TIMELY WORK, AND OUR AGENTS AND FRIENDS EVERYWHERE SHOULD
LOSE NO TIME IN SENDING IN THEIR ORDERS.

Price, \$1.50

EXPRESS CHARGES PREPAID



ADDRESS
J. B. TALTAVALL, TELEGRAPH AGE
253 BROADWAY, NEW YORK

BOOKS ON TELEGRAPHY AND ELECTRICITY.

	PRICE.
Abernethy's Outline of Commercial and Railway Telegraphy in Theory and Practice. Arranged in questions and answers. 355 pages, 25 illustrations..	\$2.00
Allsop's Bell Construction.....	1.25
" Bell Fitting.....	1.25
" Induction Coils.....	1.25
" Practical Electric Light Fitting....	1.50
" Telephones.....	2.00
Badt's Bell-Hanger's Hand-book.....	1.00
" Dynamo-Tender's Hand-book.....	1.00
" Incandescent Wiring Hand-book....	1.00
" Transmission Hand-book.....	1.00
Bottone's How to Make and Use a Dynamo. .	.90
" How to Manage a Dynamo.....	.60
" Electric Bells.....	.50
" Electricity and Magnetism.....	.90
" Electrical Instrument Making....	.50
" Electro-Motors.....	.50
" Guide to Electric Lighting.....	.75
Crocker's Electric Lighting. Vol. I., The Generating Plant.....	3.00
Crocker & Wheeler's Management of Dynamos and Motors.....	1.00
Croft's How to Make a Dynamo.....	.80
Crosby & Bell's Electric Railway.....	2.50
Culley's Hand-book of Practical Telegraphy. 442 pages, 152 illustrations and numerous plates.....	5.50
Du Moncel's Electric Lighting.....	1.25
" Electric Motors.....	3.00
" Electro - Magnets American edition, 50 cents; English edition.....	.75
Dunman's Text-book of Electricity.....	.40
Dyer's Induction Coils. How Made and How Used.....	.50
Davis's Standard Tables for Wiremen.....	1.00
Dolbear's Telephone ..	.50
Fahie's History of Telegraphy.	3.00
Fairchild's Street Railways.....	4.00
Faraday's Researches. 3 volumes	20.00
Haskin's (C. H.) Galvanometer.....	1.50
Hering's Magnet Winding.....	1.25
" Recent Progress in Electric Railways.....	1.00
" Table of Equivalents.....	.50
Hobb's Arithmetic of Electric Measurements. .	.50
Houston's Electric Dictionary.....	5.00
" Advanced Primers of Electricity and Magnetism.....	1.00
" Advanced Primers of Electric Measurements.....	1.00
" Advanced Primers of Electric Transmission of Intelligence... ..	1.00
" Electricity One Hundred Years Ago and To-Day.....	1.00
Houston & Kennelly's Alternating Electric Currents.....	1.00
" " Electric Arc Lighting.....	1.00
" " Electric Heating....	1.00
" " Electric Incandescent Lighting....	1.00
" " Electric Motor.....	1.00

Houston & Kennelly's Electric Street Railways.....	\$1.00
" " Electric Telegraphy.....	1.00
" " Electric Telephony.....	1.00
" " Electricity in Electro-Therapeutics.....	1.00
" " Electro - Dynamic Machinery.....	2.50
" " Electro-Magnetism..	1.00
Jamieson's Electricians' Pocket Companion. Elementary Manual of Magnetism and Electricity.....	.75
Jenkin's Electricity and Magnetism.....	1.25
Kapp's Alternate Currents of Electricity....	1.00
" Alternating Current Machinery.....	.50
" Dynamos, Alternators and Transformers.....	4.00
" Electric Transmission of Energy....	3.50
Lightning Flashes and Electric Dashes. Short, bright, ably written stories and sketches, telegraphic and electrical. 160 large, double-column pages. Profusely illustrated	1.50
Lockwood's Electricity, Magnetism and Electric Telegraphy. A Practical Guide and Hand-book of General Information for Electrical Students, Operators and Inspectors. 376 pages, 152 illustrations.	2.50
Loring's Hand-book of the Electro-Magnetic Telegraph.....	1.00
Maver's American Telegraphy. An Encyclopedia of the Telegraph Systems, Apparatus, Operation. Over 600 pages, 450 illustrations, greatly improved and enlarged, second edition just out.....	3.50
Maver & Davis's Quadruplex. Contents: Development of the Quadruplex; Introduction and Explanatory; The Transmitter, Rheostat and the Condenser; Stearns's Duplex; Instruments of the Polar Duplex; The Polar Duplex; The Quadruplex; The Dynamo-Electric Machine in Relation to the Quadruplex; The Practical Working of the Quadruplex; Telegraph Repeater; The Wheatstone Automatic Telegraph. By William Maver, Jr....	1.50
Meadowcroft's A B C of Electricity.....	.50
Munro & Jamieson's Pocketbook.....	2.50
Munro's Heroes of the Telegraph. The Origin of the Telegraph, Biographical Sketches, etc. By J. Munro. 288 pages, illustrated	1.40
Niaudet's Treatise on Electric Batteries	2.50
Noll's How to Wire Buildings.....	1.50
Ohm's Galvanic Circuit.....	.50
Parkhurst's Dynamo and Motor Building for Amateurs.....	1.00
" Motor Construction.....	1.00
Plum's Military Telegraph During Our Civil War. 2 volumes.....	5.00
Pope's Modern Practice of the Electric Telegraph.....	1.50
Preece & Sivewright's Telegraphy	2.00
Preece & Stubb's Manual of Telephony....	4.50
Prescott's Bell's Telephone.....	4.00
" Dynamo Electricity.....	5.00

The NEW CENTURY TYPEWRITER

is especially desirable for all kinds of work because of its



**Complete Key-board
Thorough Construction
Ease of Operation
Superior Mechanical
Principles**

"THE BOOK OF THE NEW CENTURY"
aims to give a full description of these
and many other excellencies. Write for it.

**AMERICAN WRITING MACHINE COMPANY,
343 Broadway, New York.**

MARSHALL'S ELECTRICAL CONDENSERS



**MULTIPLE SERIES STANDARD CONDENSER.
STANDARD CONDENSERS A SPECIALTY.**

Condensers for Telegraph, Telephone, Electric Light and Experimental purposes.

These condensers are used in all telegraph offices in America where standard and ordinary condensers are required. Send for catalogue.

Address **WM. MARSHALL,**
709 Lexington Ave., near 57th St., New York.

\$1250 TO \$3600 Per Year & Expenses.
FOR HUSTLERS—BOTH MEN & WOMEN



At home or traveling. Let us start you. Our Puritan Water Still—a wonderful invention. Great seller—big money maker. Enormous demand. Over 60,000 already sold. Everybody buys. It purifies the foulest water by distillation—removes every impurity. Furnishes absolutely pure, aerated, delicious drinking water. Beats Filters. Saves lives—prevents fevers, sickness, doctor bills—cures disease. Write for **NEW PLAN AND OFFER.**

HARRISON MFG CO., 12 Harrison Bldg., Cincinnati, O.

Satin Finish
Typewriter Ribbons.
Something new.

Satin Finish
Carbon Paper.
Known everywhere.

Cobweb Carbon
Used once,
Used always.

A. P. LITTLE, Mfr.,
Rochester, N. Y.

Also,
261 Broadway, New York.
161 La Salle St., Chicago.
665 The Bourse, Philadelphia.
413 Wood St., Pittsburgh.
28 Basinghall St., London.
45 Adelaide St., E., Toronto.



HUDSON'S WORD REGISTER

"A simple, accurate device for counting the words written upon the typewriter. It is easily read, instantly set, and covers both message and special work. Price by mail, with full directions for attaching and operating, \$3.00. State what machine you use. Circular free. Address

GEO. E. HUDSON,
Sheridanville, Pa.

BLOOD POISON

Primary, Secondary or Tertiary permanently cured in 15 to 35 days. We eliminate all poison from the system, so that there can never be return of the disease in any form. Parties can be treated at home as well as here (for the same price and under the same guarantee), but with those who prefer to come here, we will contract to cure them or refund all money and pay entire expenses of coming, railroad fare and hotel bills.

OUR MAGIC REMEDY has been many years in use and never failed to cure. Since the history of medicine a true specific for Blood Poison has been sought for but never found, until our Magic Cyphillene was discovered. This disease has always baffled the skill of the most eminent physicians. We solicit the most obstinate cases and challenge the world for a case we cannot cure.

\$500,000 CAPITAL

behind our unconditional guarantee. ABSO LUTE PROOFS sent sealed on application. 100-PAGE BOOK FREE.

HAVE YOU Sore Throat, Pimples, Copper Colored Spots, Aches, Old Sores, Ulcers in mouth, Hair Falling, write

COOK REMEDY CO.,
1632 Masonic Temple, Chicago, Ill.

COOK REMEDY CO.

Standard Underground Cable Co.,



**Wires,
Cables,
Accessories.**

**RAILWAY, ELECTRIC LIGHT,
TELEPHONE, TELEGRAPH.**
For Aerial, Underground
and Submarine Use.

**NEW YORK, PHILADELPHIA, CHICAGO,
PITTSBURGH, BOSTON, SAN FRANCISCO.**

THE TELEGRAPH AGE

No. 14.

NEW YORK, JULY 16, 1902.

VOL. XIX.

CONTENTS.

Some Points on Electricity.....	285
Business Notices. Annual Meetings.....	286
Personal Mention. Resignation and Appointments.....	287
Obituary. New York Visitors. General Mention. The Telegraph in Alaska. Directory of Telegraph Organizations. Recent Telegraph Patent.....	288
Telephone in Railway Service.....	289
Gift to James W. Tillinghast, Carnegie Glad it's a "Mac.".....	291
The Stevens' Wheatstone Transmitter. Mexican Telegraphs.....	292
Editorial. Improvement. Organization.....	293
Postal Takes Possession. Post office orders by Telegraph.....	294
The Defence of the Morse System.....	295
From Waterbury, Conn., to Buffalo, N. Y.....	297
Western Union's New Manager at Baltimore. New Chief Operator at Philadelphia Western Union Office.....	298
First Train Dispatching by Telegraph.....	299
Denver's Western Union New Chief Operator. Wireless Telegraphy Washington, Postal; Washington, Western Union; Savannah, Western Union.....	301
Chicago, Postal; Beaumont, Postal; Beaumont, Western Union; Montreal, Great North Western; Montreal, Canadian Pacific; Goshen, Notes.....	302
S. Louis, Western Union; Philadelphia, Western Union; Philadelphia, Postal.....	303
New York, Western Union; New York, Postal.....	304
Toledo, Western Union; Telegraphers' Organizing.....	305
The Cable. What the Police Telegraph Reports in New York....	306

SOME POINTS ON ELECTRICITY.

Barclay's Direct Repeating Relay for Multiplex Circuits.

BY WILLIS H. JONES.

Every operator is familiar with the fact that the distinctness of the signals received on a sounder varies, to a great extent, with the speed of the sender, and that an alteration in the adjustment of the sounder will, in a majority of cases, alone restore such signals to their original value. This statement applies particularly to polarized relays, and demonstrates conclusively that that instrument is capable of doing much better work than is ordinarily obtained by the present standard arrangement.

With a view of eliminating, as far as possible, all losses due to second-hand delivery of signals, Mr. J. C. Barclay, electrical engineer of the Western Union Telegraph Company, has devised a method by which the respective armature levers of two polarized relays at a repeating station are made to deliver the multiplex main battery current directly to the circuits via an extra set of contact points, without the aid of other apparatus. Ordinarily the relay levers each operate a pole-changer controlled by a local battery, and the accuracy with which the current reaches the line necessarily depends upon a proper and permanent adjustment of that instrument. Mr. Bar-

clay's device is called the "Direct Repeating Relay," a theoretical illustration and connections of which is herewith shown.

His method has been in practical operation for some time on the New York and San Francisco overland and other long circuits, and the improvement to the service derived thereby has been so marked that it has been determined to introduce the arrangement at all important repeating stations throughout the country.

It will be seen by referring to the theoretical illustration that when the three-point switches A and B are turned to the left, the two standard pole-changers with their main battery connections are thrown out of operation. Simultaneously with the turning of the switch lever, however, the batteries disconnected via that route are shifted to the relay, where one prong of a double-lever armature acts as a pole-changer and carries the current direct to the main and artificial line coils of the relays in the usual manner.

For the purpose of clearness the diagram shows but one set of contact points and lever—those for the main battery connections. The complete Barclay relay, however, possesses two sets of each, as shown in the small cut D, one of which is employed, as stated, to operate the local circuit when the levers of the three-point switches are turned to the right. The relay is of the small Western Union standard pattern, and the twin lever armature is simply two bars fastened rigidly to a common yoke (see figure D), but, of course, thoroughly insulated from other parts of the apparatus.

When the attendant at a repeating station desires to balance, or speak to the distant office, he first turns the switch levers A and B to the right, which operation restores all the connections of the apparatus to our present standard arrangement.

This move towards the utilization of latent power is undoubtedly in the right direction, and is but one of the many improvements contemplated. Mr. Barclay has been, for some time, making a special study of the weak spots in the electrical field of the telegraph service, and seems to be the possessor of many original and valuable ideas. Judging by the obvious merits of a number of contemplated improvements in apparatus and methods which he courteously disclosed to the writer, and which will be described in this journal from time to time, he is to be congratulated upon possessing the faculty of appreciating

THE TELEGRAPH AGE

No. 15.

NEW YORK, AUGUST 1, 1902.

VOL. XIX.

CONTENTS.

Some Points on Electricity.....	307
Business Notices. Recent Telegraph Patents. The Old Time Telegraphers' and Historical Association. Legal. Organization.	303
Personal Mention. Resignations and Appointments. Recent New York Visitors. General Mention. The Cable. The Railroad..	309
Compulsory Arbitration. A New Edition of Phillips' Code.....	310
Bridging Over the Periods of Reversals. Telegraph Statistics. The Telegraphs of Salvador. T. M. B. Association.....	311
Telegraphy and Photography Are Twins. The Irony of Fate. Directory of Telegraph Organizations.....	312
Henry H. Ward. Postal Telegraphy.....	313
Manager Schultz at Galveston. In Behalf of Employer and Em- ployee. The Wire Game Once More.....	314
Editorial. John W. Mackay. Power That Comes from Knowledge. An Unprecedented Sale. Coronation Telegraph Work.....	315
Fourth of July Outing of the Commercial Cable Company, London, Eng. The Postal Declares Its Position. Only a Cigar.....	317
Death of John W. Mackay.....	318
Clarence W. Mackay. Now an Inspector in Mr. Brooks' Office. New General Wire Chief at '195.....	320
Marconi on Wireless Telegraphy. Book Notice. Setting Bones by Telegraph.....	321
Buffalo, Western Union; Jacksonville, Western Union; Birming- ham, Western Union.....	322
Chicago, Postal; Denver, Western Union; St. Louis, Western Union; Bangor, Western Union; Houston, Postal.....	323
Boston, Western Union; Boston, Postal; Philadelphia, Western Union.....	324
Philadelphia, Postal; New York, Western Union.....	325
New York, Postal. William Finn in a New Position.....	326
Wireless Telegraphy. Built the Wires Across Wisconsin. A Sym- pathetic Tale—The Widow and the Telephone.....	327
Preserve Your Papers.....	328

SOME POINTS ON ELECTRICITY.

Contemplated Improvements in Telegraph Apparatus.

BY WILLIS H. JONES.

It is really astonishing sometimes, when reminded by the installation of some new, yet simple, device, to think how long we have tolerated certain familiar annoyances, for no other reason than that those most discomfited thereby were apparently too indifferent or reluctant to make any strenuous effort towards reform through the proper channels.

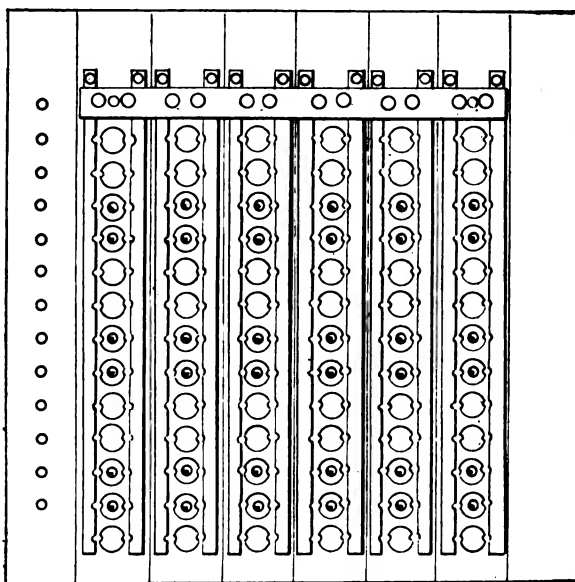
The officials of telegraph companies are not only willing, but anxious to make needed reforms whenever and wherever it can be shown that alterations are really practical, yet they are frequently unjustly credited with indifference by inventors and schemers whose proposed methods, many of which are really good, are side-tracked. The point seems to be too generally overlooked by them that the adoption of their methods would, in many cases, render useless perhaps many thousands of dollars worth of standard apparatus now in use. The erroneous impression seems to prevail that the discarded material might be utilized in branch and suburban offices.

A little reflection, however, should convince any fair-minded person that such a disposition would certainly be a step in the wrong direction. Apparatus which is not satisfactory in the main office

under the careful attention of expert attendants is surely not the proper thing for less experienced employes to handle.

Of course, when a new device is really valuable financially, despite this drawback, the replacement of standard apparatus with a new pattern will follow as a matter of business, but on that condition only.

As an example of valuable apparatus improvement with practically no additional expense, Mr. J. C. Barclay, electrical engineer of the Western Union Telegraph Company, New York, again comes to the front with a new method of switchboard alignment. His arrangement will certainly be ap-



preciated by chief operators generally, and will greatly lessen the chances of accidentally running foreign wires into each other on one row of disks, and the method will require no alteration whatever in the mechanical construction of the present standard switchboard. Nearly all methods heretofore offered involved the reconstruction of all, or at least certain parts of the structure, hence their rejection.

The accompanying diagram illustrates the manner in which a safe alignment is insured. A glance will show that a mistake cannot be made except through inexcusable carelessness. The method is to give the face of every other pair of disk rows a concave or saucer-like surface, leaving the companion pairs perfectly flat, as heretofore constructed. Thus, should the upper concave row of disks in any

pair be selected for the purpose of joining two wires together across the board, the chief operator making the connection would have to be at least four rows out of alignment before he could find another row of similar face. Such a mistake would obviously be detected even at long range and remedied immediately.

As heretofore stated, this method involves no new apparatus whatever. The disks on old switchboards can easily be marked where they stand without in the least interfering with working circuits. It is the intention of the company mentioned to make this method of alignment standard for all new switchboard apparatus, both terminal and intermediate.

Business Notices.

Within three hours of New York are some of the most delightful mountain resorts of the East, ranging in height from 1,600 to 2,200 feet. They are situated in the Pocono Mountains of Pennsylvania, on the main line of the Lackawanna Railroad, which operate a special fast express service on Friday and Saturday afternoons for business men desiring to spend Sunday with their families. These trains return Sunday night and Monday morning, respectively, affording a comfortable week-end escape from town. Interesting information about these places will be found in Mountain and Lake Resorts, a little book just issued by the Passenger Department of the Lackawanna Railroad. It is handsomely illustrated and contains a series of delightful sketches, entitled The Experiences of Pa. Send five cents in stamps to T. W. Lee, General Passenger Agent, New York City, and a copy will be mailed.

The Standard Telephone and Electric Company, of Madison, Wis., was one of the first companies organized in the United States to manufacture telephone apparatus for the use of independent exchanges and toll-line companies, and the various lines of equipments manufactured by this company can be found in every section of the United States and in many places abroad. A high grade of excellence is always maintained, both electrically and mechanically, in all lines of telephone apparatus made by this company, and wherever used a good service is always assured. "Standard" apparatus is recognized everywhere as being among the best and most reliable upon the market. The company makes a specialty of furnishing switchboards and long distance telephones to telegraph superintendents of the leading railroad companies, among which are the Union Pacific, Santa Fé, Northwestern, St. Paul, Northern Pacific, Illinois Central, Great Northern, Burlington, Pennsylvania, Baltimore & Ohio, Lake Shore and others.

Recent Telegraph Patents.

A patent, No. 704,023, has been granted to C. E. Fritts, of New York City, for an electric telegraph system, consisting of lines divided into sections and connected in series by condensers, the transmission of signals being effected by induction.

S. R. Wright, of Morton, N. Y., has been granted patent No. 704,165, for an automatic telegraph key closer.

A United States patent No. 703,892, has been granted to S. G. Brown, of London, Eng., to cover his system of multiplex telegraphy.

A patent, No. 703,810, has been granted to J. N. Newsom, of St. Louis, Mo., for a telegraphically operated train signal. By means of this invention a train despatcher or signal man can set the semaphore signals by merely sending over the circuit Morse characters properly grouped to control the respective signals.

The Old Time Telegraphers' and Historical Association.

John Brant, secretary of the Old Time Telegraphers' and Historical Association, reports that there will be a large attendance from New York and vicinity, also from Chicago and Pittsburg at the reunion, at Salt Lake City, Utah, September, 10, 11, 12. The programme of the meeting will be sent out to members in a few days. It is expected that a number of members from the Pacific Coast will be present on the occasion. This will be the first meeting ever held west of the Rocky Mountains, which will give to the members of the Far West an unusual opportunity to meet their Eastern brethren.

Legal.

The City of Newark, N. J., has refused to grant the Postal Telegraph-Cable Company license to lay its wires underground without the company agreeing to give the city two per cent. of its gross receipts. At the same time the city has ordered the company to bury its wires.

An annual license fee imposed by a borough on a telegraph company of \$1 for each pole and \$2.50 for each mile of wire maintained within the borough is not so obviously unreasonable as to render the ordinance void. This is the recent decision of a higher Pennsylvania Court affirming the decree of a lower court. If this brief decision stands the test of the Supreme Court, the telegraph companies will have to go out of business.

Organization.

The Western Union men discharged by the Chicago, Ill., management on account of activity in brotherhood matters, are being hired by the Postal company.

Mr. I. J. McDonald, who was recently discharged by The Associated Press because of his activity in brotherhood matters at Chicago, is now employed by the "American" of that city.

Boston, Mass., has organized a local branch of the International Union of Commercial Telegraphers with eighty members; Milwaukee with thirty-seven members; Kansas City with thirty-five members; Cincinnati, San Francisco and Springfield, Ill., have also established branches.

Personal Mention.

Col. Robert C. Clowry, president and general manager of the Western Union Telegraph Company, New York, has filed an application with Francis W. Jones, president, for membership in the Magnetic Club.

Mr. Henry D. Estabrook, of Chicago, Ill., has been appointed an assistant to Geo. H. Fearons, the general attorney for the Western Union Telegraph Company, with headquarters in New York, to take effect on September 1.

Mr. J. C. Barclay, electrical engineer of the Western Union Telegraph Company, New York, has returned from a Southern trip, which included visits to Lynchburg, Chattanooga, Atlanta, Augusta, Savannah and other points. As a result of these visits, storage battery plants will be installed in Charlotte, N. C., Augusta, Mobile, Montgomery and Birmingham. New specially constructed switchboards will be installed at Chattanooga and Birmingham, and an up-to-date dynamotor plant will replace the present storage battery at Atlanta, Ga., and other improvements in the service in the South will follow.

Resignations and Appointments.

Mr. H. H. Arthur has resigned from the Western Union at Pittsburg, Pa., to accept a position as manager of the telegraph department of the Santa Fé Railroad general offices, at Chicago, Ill.

Mr. Charles B. Slawter, for many years connected with the Easton, Pa., office of the Western Union Telegraph Company, has been promoted to the managership, vice C. B. Sharp, resigned.

Mr. George Maguire has been appointed cashier of the Western Union Telegraph Company at Galveston, Tex., vice Gustav Schultz, promoted to the managership. Mr. Maguire is an old employee of the company.

Mr. Frank C. Woodworth, manager of the Western Union Telegraph Company at Great Falls, Mont., has resigned to enter the commission business and will represent the firm of A. J. Cummings & Co., commission brokers.

Mr. W. D. Landon, assistant foreman of the Western Union Telegraph Company at White River Junction, Vt., has been promoted to be assistant general foreman for the New England district, with headquarters at Boston, Mass.

Mr. Bert H. King, manager at Ithaca, N. Y., has been appointed manager of the Postal Telegraph-Cable Company's office at Elmira, N. Y., vice Charles L. Jones, resigned, to devote his time to the manufacture of proprietary medicines.

Recent New York Visitors.

Mr. W. W. Splane, superintendent of telegraph of the Standard Oil Co., Oil City, Pa.

Mr. J. G. Splane, manager of telegraph department Standard Oil Co., Pittsburg, Pa.

Mr. E. J. Nally, general superintendent of the Postal Telegraph-Cable Company, Chicago, Ill.

Mr. W. S. Logue, general Western manager of the Edison Manufacturing Company, Chicago, Ill.

Mr. C. M. Baker, assistant general superintendent of the Postal Telegraph-Cable Company, Chicago, Ill.

General Mention.

Mr. W. E. Peirce, of the Washington, D. C., Western Union office, has been transferred to Lynchburg, Va., temporarily as quad man. Mr. Peirce has recently taken an electrical course in one of the colleges.

Mr. W. A. Craig, one of the best known gentlemen in telegraph circles at Houston, Tex., now connected with the Postal Telegraph-Cable Company of Texas, is acting as agent for TELEGRAPH AGE at that point and vicinity. Mr. Craig desires his friends not to overlook him when they have business connected with TELEGRAPH AGE to place.

One of the best known dentists in New York is Dr. Bissell B. Palmer, whose office is located at The Pocantico, 1690 Broadway, New York. Dr. Palmer left the telegraph service in New York City in 1885 to practice dentistry. He was well-known as a telegrapher and his success in his adopted profession is a source of gratification to a large circle of friends.

The Cable.

The cable steamer Silvertown, carrying the first section of the Pacific cable, has sailed from London for San Francisco and the work of laying the cable between that city and Honolulu will commence immediately on the ship's arrival.

The Commercial Pacific Cable Company signed a contract with the Telegraph Construction Company of London, Eng., on July 16 for the manufacture and laying of its cable from Honolulu to Manila, touching midway at Guam. The Construction Company guaranteed to complete the cable by June, 1903, providing the Government surveys can be obtained.

The Railroad.

Mr. F. J. Spaford, formerly superintendent of telegraph for the Burlington, Cedar Rapids & Northern Railroad Company, has been appointed assistant superintendent of telegraph for the Chicago, Rock Island & Pacific Railroad Company, with headquarters in Chicago.

Mr. Horace E. Chace has been appointed assistant superintendent of telegraph, vice Andrew Smith, deceased, of the Atchison, Topeka and Santa Fé railroad systems, on all lines west of Albuquerque, with headquarters at Los Angeles, Cal.

Lost yesterday, somewhere between sunrise and sunset, two golden hours, each set with sixty diamond minutes. No reward is offered, for they are gone forever.—Horace Mann.

TELEGRAPH AGE will furnish operators with just the kind of practical information they need.

Compulsory Arbitration.

Judge Murray Tuley, in a paper on "Compulsory Arbitration: Is it Practicable or Advisable," read on July 18 before the convention of the State Bar Association in Chicago, Ill., just after he had been elected president, declared in favor of the settlement of labor disputes by the courts. He said this could be done if the courts would sustain legislation authorizing the extension of the police power in all such controversies.

"Experiments with laws for compulsory arbitration of labor disputes," he said, "have shown that they tend to destroy the manhood and individuality of employer and employe alike, and that they aid the growth of Socialism. In New Zealand, where such a law has been tried, the officials have reported that petty grievances have been aggravated and great disputes multiplied.

"It is therefore my opinion, from a thorough study of the situation, that strikes and lock-outs must continue until voluntary conciliation and arbitration are arrived at; until capital comes to recognize the rights of labor to a share of profits derived from their joint operation."

Judge Tuley declared it would be a long time before a first-class power or nation would agree to arbitrate with a fifth or tenth class power, and there must first be a great change in their conception of moral principles on the part of the strong in dealing with the weak.

"The strike is the only weapon of the worker," he continued. "When it is unaccompanied by violence it is a perfectly legal weapon, but in all but a few rare instances it seems impossible to have a strike without some violence."

This the speaker attributed to the unemployed and vicious elements rather than to the body of strikers, who, he held, deplore violence and long ago recognized that might could not win a strike.

"The great difficulty is that neither labor nor capital has realized the community of interests that exists between them. But I want to say that greater heroism and devotion to principles have never been shown by the soldiers in an army from Thermopylae down to date than that of the men in the army of organized laboring men. They have a twelfth commandment. It is, 'Thou shalt not take thy brother's job,' and they keep that commandment. With some of them it is their only commandment.

"But you would cease to wonder that excesses are sometimes committed if you were to put yourself in their places for a time. Until a few years ago a strike was a purely local matter, but this great federation of laboring men, extending into every corner and every industry in our land, and the development of the railway and the telegraph has changed all, and it is now a National or international affair.

"This anthracite coal strike, for instance, is costing the owners and men a million dollars a day—about what the Spanish war cost. Nobody can conceive the indirect losses—perhaps double or treble. It, or any similar strike, may continue until commercial chaos follows and a panic ensues with results more disastrous to the Nation than any war."

Proceeding, Judge Tuley said:

"Here we have the spectacle of one John P. Morgan, who absolutely controls a billion-and-a-quarter-dollar steel combine, this general of finance, before whom the captains of finance cringe and fawn, before whom royalty bows obsequiously, and on whose life great men of finance take out insurance policies, fearing the awful results to finance from his death. This man who stood hat in hand and heard the plea of great financiers and the representatives of working men for the arbitration of the miners' case, walked away indulging in a long supercilious stare.

"Kings have gone mad. Suppose the brain of this man, with his thousand of millions of dollars of interests should give way. Suppose he should arrogantly defy this great federation of labor and precipitate a general cessation of labor in every line. It is believed now he is behind the coal barons in their declaration to the miners that there is 'nothing to arbitrate.' It is believed also by many that the Constitution of the National Civic Federation was suggested by him.

"The disposition to arbitrate appears no longer to exist. The larger the corporation the less it seems to be influenced by humanity. It is only a question of dividends; the smaller the wages, the larger the dividends, and vice versa. The laborer seems to be considered merely a part of the machinery in the establishment.

"The nationalization of railroad, telegraph and telephone lines might do a great deal toward solving the problem. Shall these corporations and employers be placed under public control and restraint? Shall they be forced in some way to submit their disputes to the courts of justice as all other disputes are?

"I believe a solution lies in this line of action. The courts will eventually rise to the necessity of holding that legislation can be enacted to meet the conditions, and thus make the public welfare the supreme law."

A New Edition of Phillips' Code.

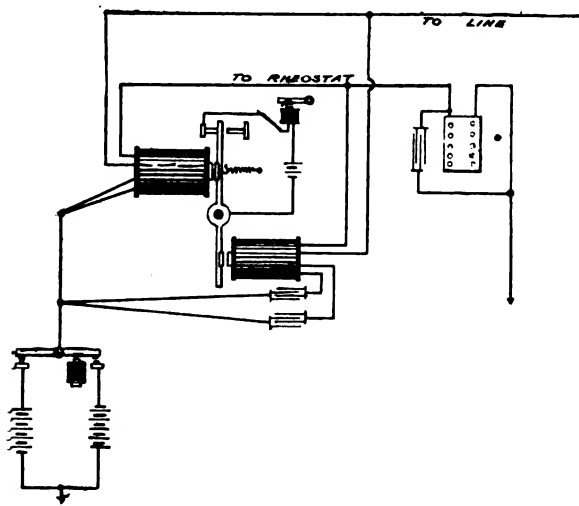
The Phillips Code, by Walter P. Phillips, that ever popular method of shorthand arranged for telegraphic purposes, has once again made its re-appearance in a new edition in familiar form, from the press of TELEGRAPH AGE. The work has been carefully revised and brought strictly up-to-date by Mr. A. P. Velie, a gentleman for many years identified with The Associated Press, New York, and thoroughly competent for this task. With the necessary additions it now contains, the volume presents a compendium of telegraphic abbreviations of such value that as a matter of fact, no operator really can afford to be without it. In truth, the demand for the book has steadily increased from year to year, and the work has long been considered standard. The new volume is everywhere received with unstinted praise, and orders for the book are very large. The price is \$1 per copy, and all orders should be addressed to J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

Operators will find a fund of practical information in every issue of TELEGRAPH AGE.

Bridging Over the Periods of Reversals.

BY D. B. GRANDY, OF ST LOUIS, MO.

I enclose herewith a sketch of a method of bridging over the period of reversal in the neutral relay of a quadruplex, with which I obtained results I have never seen equalled by any other method. The sketch shows only the neutral relay with its connections. The relay has two magnets acting in the same direction on a common armature. Both magnet coils are differentially wound. The upper magnet is connected to line and rheostat in the usual manner. The lower magnet is also connected to line and rheostat, but in each circuit of this magnet a condenser is introduced, of sufficient capacity to produce the required effect on the magnet. The balance in the lower magnet will be disturbed only by changes in the polarity or potential of the incom-



METHOD OF BRIDGING OVER THE PERIOD OF REVERSAL.

ing current. During reversals of that current, at the moment of "no current," the condenser on the line side of the auxiliary magnet discharges, momentarily magnetizing its core and holding the armature during the period of no current in the upper, or regular, relay magnet. This action of the auxiliary magnet occurs precisely at the moment when it is needed, namely, at the time of "no current" from the line; and as its core is free from magnetism except when momentarily affected by a disturbance in the balance of its condenser circuits, it is always ready to respond to the charge and discharge of the condenser connected to line.

In the Smith arrangement, the condenser circuit being on the same core with the line and rheostat circuits, its only effect was to hasten the change in the polarity of the relay core, so that the actual moment of "no current" remained, though shortened.

In the F. W. Jones arrangement, the action of the auxiliary induced current from the "Inductorium" comes too late to be of the best efficiency, and causes a tendency to "stick" in the relay action as a whole.

The arrangement shown was patented by me in 1895 and by its use messages were actually received in St. Louis on the neutral side of a Chicago quadruplex with a local sounder connected to the front contact points as shown. The only modification from the ordinary relay being a light spring on the contact point of the relay lever. Aside from a slight jar, the signals were perfect, and entirely readable, although of course not a practical success, except to illustrate the efficiency of the arrangement in bridging over reversals.

Telegraph Statistics.

Some comparative tables concerning the telegraph service in several European cities are published by the Electrical Review of London. One table shows the average time occupied in each city by a message at the various stages of its transmission; the delay occurring in the transmitting office is always the largest; next comes the time required for transmission; the delay in the receiving station is smallest. A second table shows the average number of messages per day for different cities, the approximate number of staff and the average daily work of each member of the staff. The last figure is largest in Budapest and smallest in Bucharest; in Budapest the number of telegrams per employee per day averages 96.8, in Bucharest 33.3; in London and Paris the average number of telegrams daily are 475,000 and 120,000, respectively; the number of staff, 5,000 and 1,300, and the number of telegrams per employee per day, 95 and 92.3.

The Telegraphs of Salvador.

A recent report of the Director-General of the Department of Telegraph and Telephones of the Republic shows that there were 138 telegraph and 61 telephone offices in operation in Salvador in 1901, as compared with 117 telegraph and 49 telephone offices in 1900. The number of employees in 1901 in the two branches of the government service referred to was 433. The telegraph system of the country in 1901 consisted of 2,098 miles of telegraph lines, as compared with 2,029 miles in 1900. There were 1,032 miles of telephone lines in operation in 1901, as compared with 959 miles in 1900. The total length of the telegraph and telephone systems of the nation in 1901 aggregated 3,130 miles.

T. M. B. ASSOCIATION.—Assessment No. 396 has been levied to meet the claims arising from the deaths of James H. McNally, at Buffalo, N. Y.; Wayne H. Graves, at St. Louis, Mo.; Millard F. Campbell, at Wilburton, I. T.; John H. Emerick, at Brooklyn, N. Y., and Frank J. Temple, at Bangor, Me.

A Brooklyn operator a few night since before starting in to send a lot of "red" messages to New York, said, "Here are a lot of strawberries." The New York operator instantly replied, "Minute, till I get some short cake blanks to put them on."

Telegraphy and Photography Are Twins.

BY FRANCIS W. JONES.

Many telegraphers will remember the appearance of a very handsome and useful Handbook of Electrical Diagrams which appeared over a quarter of a century ago, the authors being Charles H. Davis and Frank B. Rae. The superb plates were from diagrams made by Mr. Davis, whose fine artistic eye and hand were very much in evidence. It is a pleasure to note the phenomenal advance Mr. Davis has made from what must now seem to him a very crude beginning but what contained the latent germ of his artistic talent. He stands at present as one of the leading photographers of the world with a studio, under the name of Davis and Sanford, in Fifth avenue, New York. His display of photographic samples is a dream of loveliness and perfection of the art, and his grand mansion on Riverside Drive and 80th street, occupied by himself and a most charming wife, is substantial evidence of the value in which the public for several years has held his professional services. This good fortune falling to Mr. Davis, an old time telegrapher, is peculiarly fitting when it is remembered that, Prof. S. F. B. Morse, the inventor of the telegraph, was the first one to bring to America the great discovery of Daguerre of France. A description of Daguerre's process, which was then new, was communicated by letter from Paris by Prof. Morse to his brothers in New York and was published in the New York Observer, April 20, 1839, two years after Morse had constructed his first telegraph model. It took fifteen minutes exposure of a plate at that time to secure a picture and this was trying on the eyes of the sitter. On this account Daguerre was skeptical of ever being able to take portraits of living persons. For out of door views Prof. Morse said in above letter: "The pictures are produced on a metallic surface about seven by five inches and resemble aquatint engravings for they are simple chiaro-oscuro and not in colors. But the exquisite minuteness of the delineation cannot be conceived. No painting or engraving ever approached it. For example, in a view of the street a distant sign would be perceived and the eye could just discern that there were lines of letters upon it, but so minute as not to be read with the naked eye. By the assistance of powerful lens, every letter was distinctly legible, and so also were the minutest breaks and lines in the walls and buildings and pavements."

In 1839 the French Government purchased from Daguerre his most wonderful art and presented it to the world for its free use and enjoyment. Several years previously a Frenchman named Niepce had succeeded in getting crude outlines of natural objects upon sensitized plates, but could not fix them permanently. From this Daguerre proceeded to success. Niepce had died before this, but through possession by Daguerre of the Divine quality of gratitude together with his other great gifts, he recognized the continued validity of a contract he had with Niepce and shared with his widow and

son the fruits of the perfected discovery due alone to Daguerre.

As soon as the process was made public, Daguerre sent all the necessary information to Prof. Morse, who put the art into use without delay in "the palace of the Sun," erected by his brothers on top of the Morse building, corner of Nassau and Beekman streets, New York City. Prof. Morse was also assisted by his colleague, Prof. John W. Draper of the New York City University, who was instrumental in perfecting the process of securing portraits.

While Prof. Morse was in Paris, in 1839, a very curious thing happened. He had invited Daguerre to examine his telegraph system which he had on exhibition and also asked permission to see Daguerre's wonderful picture-taking discoveries which were creating the most intense excitement in the scientific world. On March 7th, Prof. Morse made his visit to Daguerre's rooms in the Diorama, and the visit was returned by Daguerre at noon the next day to see the Morse telegraph, and while there the Diorama was burned down and with it Daguerre's house and all his experimental apparatus and papers, but his marvelous brain preserved the "blessed art that can immortalize."

The Irony of Fate.

Victor Nimault, formerly an operator in the employ of the French telegraph service, died recently on Devil's Island, the French convict settlement off Cayenne. He was the man who it is claimed invented and patented the telegraphic system since used in France and known as the multiple transmission system. This was thirty years ago. Coincident with his invention M. Baudot invented a somewhat similar apparatus, which, it is said, because of official countenance, found favor with M. Raynaud, the director of the telegraphic department, and was adopted. Stung by the injustice done him, and defeated in several suits brought to establish his claims, Nimault shot and fatally wounded M. Raynaud, an act for which he was tried, sentenced to imprisonment for life, and in due course was sent out to Cayenne. Thirty years having elapsed, he was recently pardoned by President Loubet. A subscription made by his friends in France left by the same boat which took out his pardon. But it arrived too late, for Victor Nimault, who had been ill for some time, died the day before port was made. The irony of it all is that poor Nimault's system has been in use in France for many years now; for, after he was sentenced, it was found to be preferable to the one adopted and approved by Raynaud, the then director of the telegraphic department.

Directory of Telegraph Organizations.

International Association of Municipal Electricians. Next meeting, Richmond, Va., Oct. 7, 8 and 9.

Old Time Telegraphers and Historical and United States Military Telegraph Corps Association. Next meeting, Salt Lake City, Utah, September 10, 11 and 12.

Henry H. Ward.

The transfer of Mr. Henry H. Ward, who has acted as cashier of the Western Union Telegraph Company, at 195 Broadway, N. Y., for over a quarter of a century, to the American District Telegraph Company, removes from the telegraph service a well known personality, an able official, systematic and untiring in his methods, and an affable gentleman who has gained a host of warm and steadfast friends. Mr. Ward is fully entitled to be referred to as an "old-timer," and in this case the term carries with it an endearing sense of comradeship to many, for it was back in the spring of 1848, fifty-four years ago, that the now retiring cashier commenced his telegraph life at Springfield, Mass. At that time the telegraph system between New York and Boston consisted of but a single wire with way stations at Stam-



HENRY H. WARD,

Who has been transferred to the American District Telegraph Company.

ford, Bridgeport, New Haven, Hartford, Springfield and Worcester. It was to the latter place that the subject of our sketch was soon transferred.

The manager at Worcester was a dignitary known as "Professor" Strong, a man who was credited with knowing everything about electricity. He was also something of a mechanic and illustrated his ability in manufacturing small brass switches for moving upon brass screw heads whereby complete results in changing instruments and in switching wires were obtained. The young operator gained experience by assisting in these manufactures and in their application to the lines. A year had not passed when a manager was needed for temporary service at Norwich, Conn., to which place Ward was sent, a month later being placed in the New York office then at No. 5 Hanover street. Three months in

New York did much to develop young Ward as a telegrapher, and at the end of that period he was transferred to Boston, and soon after to Portland, Me., as manager. That city was considered an important post, for Portland was the repeating point for all down east business. There were then no repeaters, but everything was copied and re-sent. Steamer news from Halifax was an important and voluminous matter to handle and waiting at night for it at fifty cents per hour after 9 o'clock, was a thing to be appreciated, inasmuch as salaries in those days were ranging from but \$300 to \$400 per annum. At Portland, in 1850, Mr. Ward began receiving messages by sound much to the wonder of L. L. Sadler, the superintendent.

In 1851 Mr. Ward was appointed "first operator" in the Boston office, taking the place of the renowned "Billy" Porter. There were then but two Morse wires to New York, one for "way," the other for "through" business. Registers and paper were commonly used. The through wire was supplied with a copyist. Work by sound was not very general but from time to time was practiced, although the use of paper in the registers was required, and reading by sound was prohibited by the officials.

In 1863 Mr. Ward was called to the New York office, then at 145 Broadway. The growth of line and absorption of opposition and connecting companies had progressed. At this period the line east and south of New York were controlled by the American Telegraph Company. The western business was handled by the New York, Albany and Buffalo Telegraph Company.

Mr. Ward continued with the American Telegraph Company as assistant manager and manager of the general office until 1865, when the appointment of superintendent of the Metropolitan District was conferred upon him.

In 1866 the Atlantic cable having been brought to successful operation, he was appointed superintendent of the cable company's affairs. He represented their interests until 1874, when he was made secretary and treasurer of the Gold and Stock Telegraph Company, a position he relinquished in December, 1875, to accept the appointment from which, after years of faithful service, he now withdraws.

Postal Telegraphy.

There are numerous considerations that will make the American people pause long before giving their approval to the scheme of Government ownership of the telegraph system, says the New Orleans States. The public is not unmindful of the fact that the Government has been in the habit of stopping the running of Sunday mail trains and the delivery of the mails on Sunday. In view of this fact it is reasonable to assume that in the event the Government takes over the telegraph lines the offices would be closed on Sunday for both newspaper and private despatches, as the Sunday mails are now stopped wherever practicable.

Retirement of Mr. Merrihew.

Mr. James Merrihew, general superintendent of the Southern division of the Western Union Telegraph Company, New York, has resigned, to take effect on September 1.

Mr. Merrihew, who was born at Wilmington, Del., November 18, 1837, began his telegraphic career as a messenger boy in 1849 in his native city. He has never been out of the telegraph



JAMES MERRIHEW, OF NEW YORK.

Retiring General Superintendent of the Southern Division of the Western Union Telegraph Company.

business and through years of continuous service in the Magnetic, Washington and New Orleans and Western Union Telegraph companies as messenger, operator, manager, district superintendent, assistant general superintendent up to the position of general superintendent his advancement has been constant, and the reward of true merit. Always an efficient, painstaking courteous official, he has made a fine record, and now as he nears his sixty-fifth year and retires from the service to which he has devoted his life, he carries with him into retirement and a well-earned period of rest, the cordial good will and respect of all associates and hosts of friends.

Resignations and Appointments.

Mr. S. R. Crowder, of Richmond, Va., has been appointed electrician of the Southern division of the Western Union Telegraph Company.

Mr. M. W. Rayens, superintendent of the American District Telegraph Company, New York, has resigned his position to enter other business.

Mr. J. D. Flynn, for the past nine years superintendent of the Western Union Telegraph Company, Pittsburg, Pa., has resigned.

Mr. J. W. Walsh, of Providence, R. I., has been appointed to a position in the New York bureau of The Associated Press, vice E. A. Goshert, resigned.

Mr. A. C. Johnson, chief operator of the Postal Telegraph-Cable Company, Memphis, Tenn., has resigned to accept a position with the same company in the Chicago office.

Mr. W. A. Harris, manager of the Western Union Telegraph Company, New Haven, Conn., has resigned. Mr. T. E. Russell, of Meriden, Conn., has been appointed acting manager in his stead.

Mr. R. C. Bliss, formerly manager at Springfield, Ohio, has been appointed manager of the Western Union Telegraph Company at Cincinnati, Ohio, vice C. E. Page, promoted to the superintendency at Boston, Mass.

Mr. H. E. Roberts, superintendent of the Western Union Telegraph Company's real-estate in New York City, has been appointed superintendent of the American District Telegraph Company, New York, vice M. W. Rayens.

Mr. E. B. Saylor, for the past twenty years chief operator of the Western Union Telegraph Company, Philadelphia, Pa., has been appointed superintendent of the same interests, with headquarters at Pittsburg, Pa., vice J. D. Flynn.

The Southern division of the Western Union Telegraph Company has been merged into the Eastern division, and Mr. Belvidere Brooks, general superintendent of the latter, has now supervision over the two combined divisions. His headquarters will remain at New York as at present.

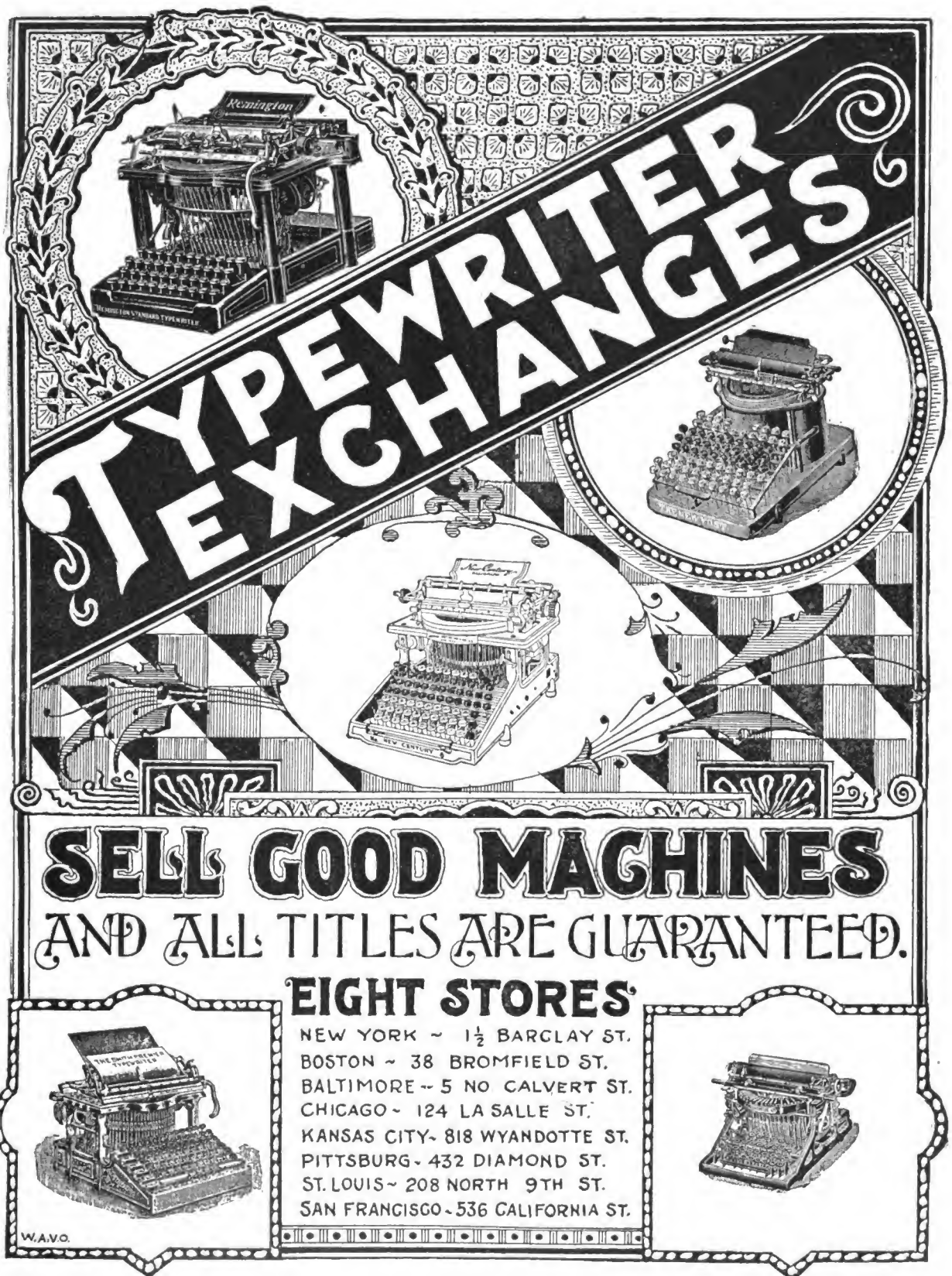
The electrician's office of the Western Union Telegraph Company, Boston, Mass., has been abolished and Mr. J. W. Larish, who has occupied the position of electrician of the company for the New England States, has resigned to enter other business. Mr. Larish was offered a position in the electrical engineer's office in New York, but he preferred to remain in Boston.

T. H. Reynolds, aged forty-two years, manager of the Western Union Telegraph Company, San Francisco, Cal., committed suicide on September 27. He had held the office of manager since January 1, 1901, and his record was a good one.

Directory of Telegraph Organizations.

International Association of Municipal Electricians. Next meeting, Richmond, Va., Oct. 7, 8 and 9.

Old Time Telegraphers and Historical and United States Military Telegraph Corps Association. Next meeting, Salt Lake City, Utah, September 10, 11 and 12.



TYPEWRITER EXCHANGES

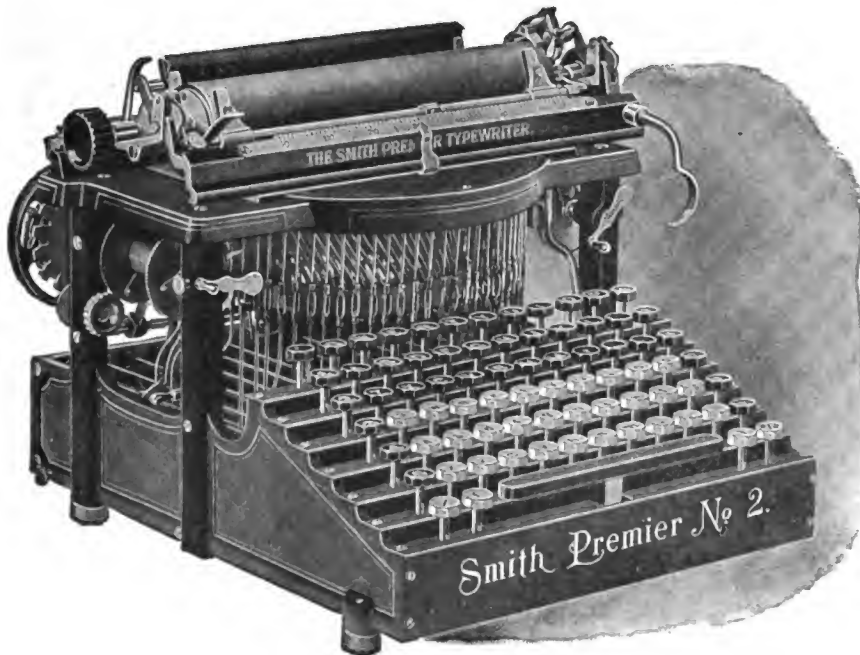
SELL GOOD MACHINES
AND ALL TITLES ARE GUARANTEED.

EIGHT STORES

NEW YORK ~ 1½ BARGLEY ST.
 BOSTON ~ 38 BROMFIELD ST.
 BALTIMORE ~ 5 NO CALVERT ST.
 CHICAGO ~ 124 LA SALLE ST.
 KANSAS CITY ~ 818 WYANDOTTE ST.
 PITTSBURG ~ 432 DIAMOND ST.
 ST. LOUIS ~ 208 NORTH 9TH ST.
 SAN FRANCISCO ~ 536 CALIFORNIA ST.

W.A.V.O.

The Smith Premier Typewriter



GRAND PRIX, 
PARIS, 1900.
HIGHEST AWARD
POSSIBLE.



Favorite of operators on
Press wires. Complete
Keyboard. Always ready.
Never out of order.



Simple, Durable,
Light Touch,
Strong Manifold.

THE SMITH PREMIER TYPEWRITER COMPANY

SYRACUSE, N. Y., U. S. A.

THE GAMEWELL FIRE ALARM TEL. CO.

19 BARCLAY ST., NEW YORK.

Gold Medal awarded at Berlin, Germany, Ex-
position of Appliances for Fire Pre-
vention and Fire Extinguishment.

**FIRE ALARM and POLICE
SIGNAL TELEGRAPHS**

For Cities and Towns.

Over 1,000 Plants in Actual Service.

SELLING AGENTS:

Frank C. Stover,
161-163 Randolph Street, Chicago, Ill.
The A. J. Coffee Company,
230 Kearney Street, San Francisco, Cal.
Oliver P. Crocker, Atlanta, Ga.
Wm. E. Decrow,
178 Devonshire Street, Boston, Mass.
Southern Electric Co.,
Hoen Building, Baltimore, Md.
H. M. Cross,
111 E. 4th St., Cincinnati, O.
Utica Fire-Alarm Telegraph Co., Utica, N. Y.

THE PHILLIPS CODE.

PRICE, \$1.00.

A thoroughly tested method of Shorthand,
arranged for Telegraphic Purposes and
contemplating the rapid transmission of press
reports, also intended to be used as an easily
acquired method for General News-
paper and Court Reporting.

Address,

J. B. TALTAVALL,

TELEGRAPH AGE, 263 BROADWAY
NEW YORK.



DYNAMOTORS FOR TELEGRAPH WORK

By reason of superior design and construction our
apparatus gives the best possible commercial value
under all conditions of service.

SPRAGUE ELECTRIC CO.

General Offices: 527-531 West 34th Street, New York.

The Telegraph Age.

Entered as second-class matter at the New York, N. Y., Post Office.

Published on the 1st and 16th of every month.

TERMS OF SUBSCRIPTION:

One Copy, One Year,	-	-	-	\$1.50
One Copy, Six Months,	-	-	-	.75
Foreign Countries,	-	-	-	2.00

ADDRESS ALL COMMUNICATIONS TO

J. B. TALTAVALA, - Editor and Publisher,
253 BROADWAY, NEW YORK.

E. H. BOWEN, MANAGER ADVERTISING DEPARTMENT

W. N. GATES, SPECIAL ADV. AGT., GARFIELD BLDG., CLEVELAND, O.

CABLE ADDRESS: "Telegraph," New York.
Telephone, 4143—Cortlandt.

CHANGES OF ADDRESS.—The address of a subscriber will be changed as often as desired. In ordering a change of address the old as well as the new address must be given.

REMITTANCES to *Telegraph Age* should be made invariably by draft on New York, postal or express order, and never by cash loosely enclosed in an envelope. By the latter method money is liable to be lost, and if so remitted is at the risk of the sender.

NEW YORK, September 1, 1902.

NOTE.—We desire to state that back numbers of this paper, those issued more than six months prior to any current date, will be charged for at the rate of twenty-five cents apiece when they can be furnished. This price is fixed because of the necessarily limited stock we carry, and of the difficulty we commonly have in filling an order. Oftentimes the request is for papers of a more or less remote date, with the expectancy of being supplied at but ten cents a copy, whereas in order to obtain the desired issue we are ourselves frequently obliged to pay the larger sum, or even more. The growing value of complete files of *TELEGRAPH AGE* should cause our readers to carefully preserve their issues.

Once again there are rumors of a merger between the Western Union and Postal Telegraph-Cable companies, together with that of telephone interests.

The Folly of Indifferentism.

We have frequently indulged in what has been intended, on our part, as a "heart to heart" talk with operators, counseling them to a more thorough and practical study of the telegraph in its every aspect, the business in which the most of them have permanently embarked, as a necessary and fundamental preparation for their life work. Many have appreciated our disinterested remarks, have acted on the suggestions made, and as a consequence, so far as we know, nine out of ten have found reward in advancement with accompanying increase of pay.

Yet, on the other hand, as much as we regret to say it, comparatively little interest appears to be taken by the majority of telegraph operators in

their calling. As a potent illustration of how indifferent they are to study the interests of the telegraph service, it is stated, strange as it may seem, that there is scarcely an American operator who has ever attempted to master the operation of the siphon recorder, the instrument that is used on all Atlantic cables. In almost every cable office in New York these instruments are found, but they are operated almost exclusively by foreign telegraphers. While American operators are employed to some extent by the cable companies, but few of them have seen fit to study the operation of the recorder.

This instance is one of many that comes to us in which operators fail to measure up to necessary service requirements. Why is it so? When it is remembered that the cable service pays better wages than the land lines, it will readily be seen that operators are carelessly indifferent apparently to their own good.

President Roosevelt in conceding terms to the Pacific Commercial Cable Company, as published in a previous issue, stipulates that the cable company shall employ none but American operators. The question arises: How can the company procure American operators to work their cable when such operators are not to be found?

Another instance of failure, common in almost every office in this country, to record against the operator is his neglect to acquire a practical knowledge of the switchboard. Good wire chiefs are in constant demand, yet there are few men competent to fill these important positions. It is not an idle question to ask why such is the case, for operators frequently bewail the narrow limits of their environment and the opportunities of promotion. It cannot be denied that operators, as well as those in other walks of life, will secure promotion exactly in proportion as they may be deserving of it. An equivalent, of course, must be rendered; this is a fundamental law; but capability will surely receive recognition.

It may be remarked in this connection that if the telegraph companies fail to recognize and reward ability found in the ranks that outside interests will do so. It is but a short and natural step from the telegraph to other fields of electrical endeavor, whose constantly expanding operations offer no mean opportunities to the intelligent man. Corporations have no time to educate the individual; each man must stand or fall, according to his own fitness.

The Cable.

"The Submarine and Land Telegraphs of the World" is the title of a monograph prepared by the Treasury Bureau of Statistics. It presents some information regarding the submarine telegraphs of the world which is especially interesting at this time. It shows that the submarine telegraphs of the world number 1,750. Their aggregate length is nearly 200,000 miles; their total cost is estimated at \$275,000,000, and the number of messages annually transmitted over them is more than 6,000,000.

Death of Superintendent Donner.

Mr. J. B. Donner, superintendent of telegraph of the Southern Pacific Railway, San Francisco, Cal., died of consumption at San Antonio, Tex., on August 14. Mr. Donner had been a sufferer of



J. B. DONNER.

Late Superintendent of Telegraph of the Southern Pacific Railway.

this dread disease for a long time. The interment took place at Algiers, La., his old home. Mr. Donner had a national reputation as an efficient railway telegraph superintendent because of the improvement in the telegraph service he had brought about on the vast railway system of his company.

Obituary Notes.

Charles H. Sawyer, a telegraph operator of Boston, Mass., died on August 9.

Lee Morgan, aged 32 years, an operator at Blackstone, Va., died on August 21.

George W. Printz, who was chief telegraph operator at the headquarters of Gen. Robert E. Lee during the civil war, died at Beverly, W. Va., August 16, aged sixty-two years. Col. W. H. Taylor, now president of a bank at Norfolk, Va., who was a member of General Lee's staff, says that he knew Mr. Printz well, that "Mr. Printz was an operator at army head-quarters while we were around Petersburg in 1864 and 1865. General Lee and staff, toward the close of the war occupied Mr. Turnbulls' house a short distance from Petersburg and had his instrument up stairs. I was busy with him sending orders over the wire on April 2, 1865, in anticipation of the evacuation of our lines when a shell or shot crashed through the house. Printz told me he could operate the instrument no more, and, indeed, it would have been unwise to have remained longer, so I directed him to detach the instrument and we left the

house together. I had my horse awaiting me and one for him. I told him to mount and make his way to Petersburg. I rode off to join General Lee and as I glanced at Printz, a shell or shot cut the legs off his horse and he fell with his instruments. Picking himself up he started to walk to the city. I never had the pleasure of meeting him after that, although I have often wished to do so and learn what became of him. The house was burned soon after we left it."

Personal Mention.

Col. A. B. Chandler, chairman of the Board of Directors of the Postal Telegraph-Cable Company, was again at his office in New York for a few days last week, coming from his country home at Randolph, Vermont.

Col. R. C. Clowry, president; Mr. B. Brooks, general superintendent and Mr. J. C. Barclay, electrical engineer of the Western Union Telegraph Company, New York, recently visited the Baltimore and Washington offices of that company.

Mr. Frank C. Mason, the well known superintendent of telegraph for the Borough of Brooklyn of the New York Police Department, in anticipation of his retirement in 1894, after years of active service, has purchased a farm of eighty acres near Utica, N. Y., which he is preparing for a Summer home for himself and family, when greater leisure will enable him to enjoy its attractions. To show how thorough are his preparations he has a force of men now at work making the improvements he deems necessary, one of which will be an electric light and power station for lighting the house, stables and grounds and to provide power sufficient for pumping, cutting feed for stock, etc. In the meantime he has disposed advantageously of several of his inventions in police signal telegraph apparatus to a New York company in which he has become a stockholder. It will thus be seen that Mr. Mason proposes to take life quietly in the near future.

Telegraph in Alaska.

Gen. A. W. Greely, chief signal officer of the army, who has just returned from Alaska, reports that before the end of the year Alaska will be connected with the United States by wire. In two weeks, he says, many hundred miles of telegraphic communication will have been established in that territory between the coast towns and those remote in the interior. Gen. Greely has been inspecting the operations in regard to telegraph lines.

"This," he said, "will for the first time make it possible for intercommunication to be had at a small expense between those portions of the territory where previously correspondence could be had only by mail, and where letters and answers could not be exchanged more than twice or thrice during the year."

The Pension Fund Proposition.

THE NEXT MEETING WILL BE HELD AT THE PRESS CLUB, NEW YORK, NOV. 18.

The following letter to the Editor, dated August 19, and signed by Francis W. Jones, Chairman of the Pension Committee, explains itself: "The Pension Committee appointed by the Chairman of the New York Telegraphers on March 21st last to prepare a prospectus for a pension system for the care of telegraphers advanced in years for whom no systematic and suitable provision has been made, has pursued the subject as far as it has been possible to do up to the present time, and has adopted a report of progress with recommendations, which report it desires to place before the telegraphers by whom the Committee was appointed and either to be discharged or instructed further in the premises.

"It is the view of the Pension Committee that it would be wise to secure the publication of this report through TELEGRAPH AGE if possible in advance of the meeting that may be called to consider it, so that not only the telegraphers in New York but those interested in other cities may have an opportunity to study the present situation as outlined in the report, and be prepared at a meeting to be held in New York on November 18th next, the day before the annual meeting of the Telegraphers' Mutual Benefit Association, to intelligently act upon the subject."

New York, August 18th, 1902.

To Members of Pension Committee,

Gentlemen: On my appointment by you as a sub-committee of one to interview the presidents of the Western Union Telegraph Company, The Postal Telegraph-Cable Company, Commercial Cable Company, Texas Postal Telegraph and Cable Company and the Canadian companies, I wrote each of such companies a letter dated May 9th, 1902, as per attached copy, which has already been made known to you. Replies have been received from all the parties addressed and are hereto attached. There seems to be a friendly disposition evinced in the replies received, but no definite offer of active co-operation with your committee has been made by any of the companies for the purpose of devising a feasible pension plan for the care of incapacitated and aged worthy telegraphers in the United States and Canada, such plan to contain the features which the telegraph fraternity has been assured would insure Mr. Andrew Carnegie giving "a considerable sum" as per his letter dated Feb. 13th, 1901 to Mr. W. C. Connolly, Jr., of Pittsburgh, Pa.

It was thought by some that the pension committee of which you are members should confine its attention simply to a plan for the care of present incapacitated and aged telegraphers, but the New York telegraphers at their meeting in the Press Club, at the time they arranged for this committee, gave instructions that the committee was to take up the subject where the Old Timers had dropped it in Montreal, and see if there could be devised, for the general benefit of the frater-

nity, any pension or relief plan similar to those in operation among the employes of the Pennsylvania, the Baltimore & Ohio and other large railroad systems.

There seem to be some good reasons for the withholding up to the present time of active assistance by the principal telegraph companies. Col. A. B. Chandler has been unable to give the subject attention in behalf of the Postal Telegraph-Cable Company on account of absence from his office through physical indisposition almost continually since receiving my letter, but he personally called on me about the first instant and desired to be advised at any time if he could be of any assistance. Mr. George G. Ward, vice-president and general manager of the Commercial Cable Company, has been absent in Europe on important business ever since the receipt of my letter. Col. Robert C. Clowry had been but recently appointed president and general manager of the Western Union Telegraph Company at the time he was handed my letter above referred to and it is but reasonable to infer that the subject of a pension system for telegraphers would await its turn among matters that seemed to him more pressing.

Owing to the difficulty of securing an attendance of all the members of our committee at its several meetings by reason of the pressure of other duties and of what has seemed to me to be the hopelessness of the development by them of any practicable plan on account of their pre-occupation and the very extensive and complicated nature of the pension subject submitted to them, I took the liberty of asking the assistance of the Hon. Carroll D. Wright, Commissioner of Labor, as per copy of my letter attached, dated July 30th, last, and I beg to also attach his very courteous reply of August 14th, inst.

My duties to my company have prevented me from making more than a superficial study of the application of a pension system to telegraphers, and such study has impressed me with the idea that the formulation of a plan that will be alike acceptable to commercial telegraphers, to Mr. Carnegie and the telegraph managers, will require profound study and considerable labor of some one competent to deal with it in all its phases.

The railroad employees have been grouped into eighteen general classes by the Inter-State Commerce Commission for statistical purposes, viz:

General officers, other officers, general office clerks, station agents, other station men, engineers, firemen, conductors, other trainmen, machinists, carpenters, other shopmen, section foremen, other trackmen, switchmen, flagmen and watchmen, telegraph operators and dispatchers, employees, account floating equipment and all other employees.

No classification of telegraph employees has ever been made for regulating their participation in any mutual relief or beneficial system. It seems to me that in the main the nature of their employment is widely different from that of railroad employees. In the early days of the telegraph there

were as many managers as operators; chief operators were unknown, but as wires and business increased the necessity for operators to exclusively send and receive telegrams, has grown to such proportions that in the large commercial centres hundreds are now employed under one manager assisted by a small number of chief operators for testing wires and for supervisory purposes, so that a rough classification may be made thus:

General officers, electricians, general superintendents, district superintendents, supply superintendents, managers, cashiers, chief and supervisory operators, book-keepers, clerks of departments and officers, operators, assorting and distributing clerks, superintendents of construction, foremen of repairs and repair patrolmen, dynamo attendants, managers of messengers and messengers.

Very succinct though comprehensive articles upon the plan and operation of the principal railway relief and pension system in this country have been written by Prof. Emory R. Johnson, Ph. D., and printed in No. 8 Bulletin of the Department of Labor, January, 1897, and in No. 17 Bulletin of July, 1898; also a valuable article by Samuel M. Lindsay, Ph. D., in the Labor Bulletin No. 37, 1901, upon railroad employes in the United States, giving their classifications; facts as to qualification; wages and hours of work; permanency of occupation; discipline and relations of employer and employe.

Prof. Johnson explains that "a railway relief association is a special part of the railway service established by the railway corporation for the purpose of enabling its employees to contribute definitely fixed sums from their monthly wages toward a fund administered by the department for the benefit of its members. The organization is managed conjointly by the corporation and the employees. Membership is sometimes voluntary and sometimes compulsory. The members receive aid in case of sickness or accident, and at their death their families or other beneficiaries are paid definite amounts, the benefits derived from membership being proportioned to payments.

"Railway relief departments are to be distinguished from the other and less comprehensive arrangements by means of which several railway companies unite with their employees in furnishing temporary relief. Hospitals are frequently maintained by the companies for their employees, the companies in some instances paying all the hospital expenses, and in other cases requiring the men employed to contribute a part of the cost of maintenance. Many railway companies provide their force with free surgical attendance outside of hospitals, and others contribute something to associations formed by the employees to provide themselves with relief. It is customary for railway managers, when possible, to provide partially disabled men, or those grown old in the service, with the kind of labor they are capable of performing. The railway companies having relief departments provide more systematic and comprehensive relief, covering sickness, accident, old age and death.

"Relief departments are one of the three agencies by means of which railway employees can secure relief and insurance. The other agencies are (1) the accident and life insurance companies, and (2) the associations or brotherhoods, of which there are several of national scope, each open to a particular class of railroad workmen. Some railway companies recommend their employees to insure in an accident or life insurance company with which a special arrangement has been made.

At present, however, relief and insurance is most frequently obtained through membership in an employees' association or order.

"These orders are of two kinds, the less important class consisting of the employees of single railroads. More frequently the associations are of the type of the International Brotherhood of Locomotive Engineers, or the Order of Railway Conductors of America, eligibility to membership in which depends upon the class of work done and not upon connection with the service of a particular railroad company.

"These large and influential orders maintain relief features, in which all eligible members are required to participate. In 1895 the Grand International Brotherhood of Locomotive Engineers had 536 divisions, with a total membership of 32,000; the Order of Railway Conductors of America had 370 divisions, with a total membership of 19,827. In the same year the Brotherhood of Railroad Trainmen comprised 556 divisions, and had 24,000 members. The Brotherhood of Locomotive Firemen now includes 519 lodges, and 22,978 members.

"The kind of insurance and relief afforded by the orders of railway employees is much the same as other labor organizations and secret societies provide their members. The railway relief departments under discussion in this paper are organized upon a different plan, and provide the members not only with payments on account of death, but also with assistance of definite amounts in case of sickness or accident. The present paper must confine itself to the history of railway relief departments, their plan of organization and results accomplished. A complete presentation of the subject of railway employees' relief and insurance is not attempted; that would necessitate a study of the plans for relief and insurance that have been adopted by the employees' orders, the scope of their work, the results they have accomplished, and finally a comparison of the orders and the railway departments as relief agencies.

"Thus far relief departments have been established in connection with six large railway systems, namely, Baltimore and Ohio, Pennsylvania Railroad, Pennsylvania Company (lines west of Pittsburg and Erie), Chicago, Burlington and Quincy, Philadelphia and Reading, and the Plant System.

"Each of the six relief departments is administered conjointly by the companies composing the railway system to which the department belongs. All the companies of the Baltimore & Ohio are associated in the relief organization of that system. The Pennsylvania Railroad's department comprises the Pennsylvania Railroad (lines east of Pittsburg and Erie), Northern Central, Philadelphia, Wilmington and Baltimore, and the West Jersey and Seashore.

"The motive that impelled the employees' to unite with the railway companies in the establishment of relief departments was the desire to secure aid in case of sickness or accident, and to obtain a life insurance that would insure their dependents against want. Railway employees are a comparatively well-paid class of laborers, but both their itinerant life and the intermittent character which the alternating periods of activity and inactivity in business give to much of their work militate against economical living and habits of saving. The employees have adequate reasons for favoring systematic relief and insurance agencies.

"The railway companies were moved partly by philanthropic and partly by financial motives. In the establishment of relief departments, as in the case of many other measures taken by corporations, philanthropy and economy go hand in hand. The desire on the part of the managers and directors of many of the large railway systems to promote the material and ethical well-being of their employees, is attested not only by the existence of relief departments, but also by the railroad Young Men's Christian Associations, reading rooms, libraries, and other well-known institutions supported in large part by the employing corporations. Without doubt, however, the conviction that money expended in helping maintain relief departments for the promotion of the material welfare of the operatives would prove a good financial investment was the most potent of the forces that influenced the action of the railway companies. The directors of some railways, at least, became convinced that the best interests of the roads, even when these interests were viewed strictly from a business standpoint, required that the employed should be connected with the companies they serve by some other bond than that created by the payment of current wages, and the companies thus realized that their greater good required them to identify as fully as possible their own and their employees' interests. Indeed, in this way only is it

possible to create such an esprit du corps as makes strikes impossible, and prompt men to give their employers the highest possible grade of service. In 1889, Mr. E. P. Ripley, when general manager of the Chicago, Burlington and Quincy Railroad, stated that the object of the company in establishing a relief department was to enable its employees to make provision for themselves and families at the least possible cost to them in the event of sickness, accident, or death. The company has established this department not only because it has the interests of its employees at heart, but because it believes that the department will serve to retain and attract a good class of employees, lessen the amount of discontent caused by improvidence, diminish the amount of litigation in cases of accident, and increase the good will of the employees toward the company, and their confidence in the good will of the company toward them."

Prof. Johnson also says some of the railroads adopting relief systems in conjunction with their employees, have also established in connection therewith a pension feature for the purpose of creating a fund to be used in providing for superannuated employees or those permanently disabled. It is thought by some that the Baltimore & Ohio Railroad has adopted the most satisfactory system. It gives superannuation annuities to retiring employees who have reached the age of 65 years, have served the company ten consecutive years and have been members of the relief department for four years. This pension is one-half the allowance granted to sick members. The members in the relief department are divided into five classes based on their wages. If the pensioner has been a member fifteen years he gets an additional five per cent., and ten per cent. when twenty years a member.

It is claimed that the relief department benefits not only the employees, but also the railroad company and the public, as the disposition on the part of the companies to promote such vital interests of their helpless employees, tends to a harmonious promotion of the mutual interests of labor, capital and society.

These relief departments are additional to and in competition with the large relief and insurance associations independently conducted by the various orders of railway employees. Railway employees also support one or two small homes for aged and disabled employees.

It is obvious that persons in the most numerous class of railroad employees, viz: those engaged in and around locomotives and running trains, are open to accidental injuries which no foresight of the companies can obviate. No similar dangers beset telegraphers, so that beside following the wise and enlightened policy of securing the advantages of a longer and more loyal service of their faithful and experienced employees, the railroad managers at the same time assist in providing prompt pecuniary aid in a systematic way to the unfortunate who are so frequently injured in the performance of their duty.

A few commercial telegraphers at present are supporting the Telegraphers' Mutual Benefit Association which provides the payment of \$1,000.00 or \$500.00 upon the death of a member. They also have in New York City and in a few other large telegraph centres, aid societies for the payment of weekly benefits to sick members. The

Commercial Cable Company supports a system by which the lives of its employees are kept insured at the company's expense in one of the large life insurance companies.

It seems to me that any system of pensions for persons employed by telegraph companies must particularly apply to those who are constantly employed at the key, as they greatly outnumber all other classes of employees and will continue to increase in a greater ratio.

Those at the key in some respects are subjected to the most trying conditions of service which is quite different from almost all other branches of industrial occupations; yet a pension system, if adopted, should be elastic enough to provide equitably for all classes of commercial telegraph employees.

In the Pennsylvania Railroad Company's plan of pensions all officers and employees who give entire time to the company and who attain the age of 70 years, or who being between the ages of 65 and 69 years inclusive, and having been employed 30 or more years in the service of the railroad company, and shall then be physically disqualified, shall be relieved and placed on the pension roll. No accident nor sick benefits shall be paid thereafter. No person over 35 years of age shall be given employment by the railroad company unless with the approval of the Board of Directors.

The Illinois Central Railroad supports a pension system which provides for all officers and employees 70 years of age, and who have been ten years in the service, except locomotive engineers and firemen, conductors, flagmen, brakemen, train baggagemen, yard masters, switchmen, bridge foremen, section foremen and supervisors. These may be retired at 65 years of age and pensioned if ten years in the service.

It is manifestly absurd to think of a pension system that is only applicable to active telegraphers when they arrive at the age of 65 or 70 years. The large proportion of actual active operators to those holding advanced desirable positions which afford better wages in large telegraph centres, confine the chances of promotion and betterment of condition in the service, to a very inconsiderable number, particularly as the extension of the service in the face of telephone competition and fast mail service, must be slow and the promotion of operators to positions of less physical strain and greater emolument must necessarily be infrequent.

It is my opinion that no pension system such as advised in Mr. Carnegie's letter, can be inaugurated unless by and with the leading and active co-operation and participation of the telegraph companies. The question must be understood aright before anything satisfactory can be accomplished. If the telegraphers choose to organize and voluntarily provide pensions for themselves that is one thing, if they prefer to join with their employers in a relief system, that is another thing, the latter to my mind is the only feasible plan.

Persons engaging with a telegraph company

to work wires are supposed to know in advance that the first few years of their service are the most profitable to the company, and that as time goes on they become less and less able to transmit or receive telegrams rapidly. The age at which operators become incapacitated, of course, depends upon their physical constitution and the kind of wires they are required to work.

Quite a large proportion of operators are ladies and it will not be denied (other things being equal) that they are not physically adapted to endure the strain of working busy wires for as many years as male operators are able to do. It is fair to presume that if the foregoing statements accord with the facts that they are well known to all who have entered the telegraph service and that they knew what to expect when the time arrived that they became worn out with toil.

The great cost of telegraph wires to cover so many thousands of miles, and the enormous cost of their equipment and maintenance, together with the great wear and tear of the system, renders it a stern necessity, under present conditions, that the telegraph companies should secure the greatest possible transmission of traffic over each and every circuit during the busy hours of the day, in order that enough revenue may be earned not only to pay high wages to the employees, but also to keep the system in the very best working condition, meet all depreciation and return a fair dividend to those whose capital brought the telegraph system into existence and set and kept it in operation.

If it is true that young persons who have entered the telegraph service as operators, become incapacitated on an average in a comparatively few years and need replacing by young blood, for the good of the service, then indeed the labor question assumes not only for them, but for the companies as well, an extremely serious importance.

As a rule operators have not the time nor opportunity to acquire a more lucrative profession or trade nor to make profitable investments with what they may have been able to save, and the serious problem confronts them as to their future source of income to provide for their comfort should they pass the average age limit and become incapacitated.

The manner in which this will affect the companies will be in the higher rate of wages demanded in the telegraph service than in other industrial pursuits in which the conditions of labor are more favorable and afford a better prospect for providing something for the comfort of the employees in the inevitable and proverbial "rainy day."

There are at present employed in the telegraph service several persons who are fit subjects of sympathy and assistance. They have drifted along through the years, many of them being favored by the companies and kept at work on circuits which could have been made to yield more revenue in other ways, and the time has arrived when such operators, incapacitated from age or

otherwise, must step aside for others more active. It was probably such operators that the Old Timers had in mind when efforts were made to establish a home, but if any plan could be arranged by which the limited number of existing incapacitated telegraphers can be given permanent pecuniary relief, the plan would be greatly contracted below the one I believe this committee was appointed to consider and the one advised by Mr. Carnegie.

Under all the circumstances, in view of the character of the whole subject, I suggest that this committee report back to the telegraphers by whom it was appointed with the recommendation that if they believe that there is a prospect of the telegraph and cable companies giving any assistance in the formulation and establishment of a satisfactory pension or other relief system in connection with their employees, that a competent expert such as Prof. Emory R. Johnson, Ph. D., of the University of Pennsylvania, be employed to devise a practicable system that will meet the approval of the telegraph companies, Mr. Carnegie and the telegraphers.

Very respectfully,
(Signed) Francis W. Jones.

Chairman.

At a regular meeting of the Pension Committee on August 18th, 1902, in the office of Mr. E. F. Howell, 195 Broadway, New York, the above report was accepted and adopted as the Committee's report to be printed and presented at a meeting of telegraphers to be held at the Press Club in New York, on the evening of November 18th next.

The pension committee consists of Francis W. Jones, John Brant, E. F. Howell, W. C. Burton, P. J. Tierney, and W. A. Van Orden.

The letters previously referred to are as follows:

Hon. Carroll D. Wright,
Commissioner of Labor,
Washington, D. C.

Dear Sir:—

"I take the liberty of enclosing a copy of a letter which has been addressed to the executive officers of the Western Union Telegraph Company, Postal Telegraph-Cable Company, Canadian Pacific Telegraph Company, the Great Northwestern Telegraph Company of Canada, and the Postal Telegraph Company of Texas.

"I think the letter will briefly explain generally an object which the telegraph fraternity is desirous of securing if possible. The subject, however, is quite complicated, and far-reaching as to details and effects.

"I am the present chairman of the committee alluded to in the first paragraph, and have received very friendly expressions from the chief officers of the Postal-Telegraph-Cable Company, and also the Commercial Cable Company, but the formulation of some feasible plan seems to me to require an expert in this line who has had considerable experience with similar systems for other large corporations, and who could give it special attention, which it is quite impossible for the telegraphers' committee to do, and which I fear could not well be undertaken by the telegraph companies themselves, but if there could be devised some system which contained the elements of practicability and mutuality, I do not doubt but it could be successfully launched.

"Would you be so extremely kind as to give me the benefit of your views upon the subject, and if you coincide with my views as to the necessity for an expert, to suggest the name of one whom you think would be competent.

"I notice that in your report, No. 8, of January, 1897, on page 42, that great credit has been given to Dr. W. T.

Barnard in respect to the Baltimore and Ohio system, and Mr. J. A. Anderson, of Trenton, N. J., as the author of the Pennsylvania Railroad Company's system.

"The telegraphers at present have no national brotherhood embodying a relief, pension or insurance system, excepting the Telegraphers' Mutual Benefit Association, which is to a small extent encouraged by both of the great prevailing telegraph companies. There is, however, in New York a relief and aid association, and possibly there may be similar ones in Chicago and elsewhere.

"Any service you can consistently render to the telegraphers in this direction, I am sure will be heartily appreciated. Very respectfully yours,

"FRANCIS W. JONES, Chairman."

New York, July 30, 1902.

"In answer to your very interesting communication of July 30th, I have to say that after carefully examining the project as stated by the committee in its communication of May 9th, to which you refer, I heartily approve the suggestion made. I am in accord with the recommendations of Mr. Carnegie. The home is not what we want, it seems to me, but a joint fund for the benefit of telegraph operators. Some scheme introducing the best features in the Pennsylvania Railroad and Baltimore and Ohio Railroad plans would accomplish the purpose. Prof. Emory R. Johnson, University of Pennsylvania, Philadelphia, is the best informed man in the country, so far as I know, on these subjects, and I would cordially recommend to you that he be not only consulted, but employed as an expert in shaping the plans for your association. Homes do not meet the needs of the men. I think this has been proved by such establishments as the Drexel Home in Colorado for printers, although that has met with perhaps reasonable success. Mr. Carnegie's position is so strong that it ought to be considered, and I am very glad to see that in the vote of your committee it was decided not to consider the establishment of a home.

"I send you a few bulletins in which you will find articles and reports, some of them from Prof. Johnson, on relief associations.

"If I can be of any further service to you I trust you will feel at liberty to command me."

The letter addressed by Mr. Jones to the telegraph companies was as follows:

Dear Sir:

A committee representing a large number of telegraphers has requested me to solicit your advice and co-operation in formulating and carrying into effect a plan for the care of incapacitated and aged worthy telegraphers in the United States and Canada.

This subject has been for some time under the consideration of the telegraph fraternity in the United States, and I thought it would be agreeable to you and conform to your convenience if I were, as succinctly as possible to give a resume of the situation as it presents itself to the committee aforesaid.

The necessity for the care of incapacitated telegraphers has long been felt, and various unsuccessful efforts have been made to devise some permanent plan for their relief.

The first serious move in the matter was made in Chicago a few years ago by the Old Time Associated Press Operators presided over by Mr. Addison C. Thomas of The Associated Press, but no definite step was taken.

The question came up at the Old Time Telegraphers' meeting held in St. Paul in September, 1900; Mr. Thomas formally turning the matter over to the Old Timers' Association which referred it to its executive committee for action.

The prevailing sentiment at that time seemed to be in favor of a Home, and some generous offers from Colorado were made to give land and money for the purpose. Shortly after the St.

Paul meeting Mr. W. C. Connolly, Jr., of Pittsburgh, in behalf of the telegraphers wrote to his friend, Mr. Andrew Carnegie, asking his assistance in the establishment of a home for telegraphers, to which letter Mr. Carnegie made the following reply—

5 West 51st street,
New York, Feb. 13th, 1901.

Mr. W. C. Connolly, Jr., Pittsburgh, Pa.

Dear Mr. Connolly:—

Yours of January 14th is before me this morning. I have known several "Homes for the Aged" of specified classes that amounted to little or nothing, from Bulwer's "Home for Decayed Authors," down. Old men will not leave home and its associations to live in a distant place. Would it not be better to have a pension fund for telegraphers who are aged and invalid? I do not see why the Pennsylvania Railroad system should not be introduced; the railroad pays half and the employees about half, and this takes away from it the element of charity. Men enjoying the pensions are really using what they themselves have contributed. If the Old Time Telegraphers' Association would get up a scheme like that, I should be glad to give a sum as a nucleus.

"I feel very warmly toward my old associates, and should be glad to give a considerable sum, provided the pension scheme could be made available. My opinion is that this would do far more good than your proposed home away out in Arkansas. Very truly yours,

ANDREW CARNEGIE.

P. S.—The telegraph companies would also contribute, I think, as the Baltimore and Ohio and Pennsylvania Railroads do. Please let me know how the idea strikes you.

Mr. Carnegie's reply, as I am informed, was forwarded to Mr. A. C. Thomas, who with Mr. S. A. Duncan, Col. W. B. Wilson, Mr. Frank Richardson and Mr. Walter C. Burton, had been appointed a sub-committee of the executive committee of the Old Timers' Association upon the telegraphers' home subject.

At the Montreal meeting of the Old Timers in 1901 upon the report of the executive committee the subject was discussed and the following resolution was adopted unanimously:

"Moved that this association, thoroughly believing in the care of incapacitated telegraphers, does not believe a national or international home is practicable." It was generally understood that as an association is was out of its sphere to attempt to represent the telegraph craft at large in the matter, as the Old Timers were organized purely for social purposes.

After the above meeting the Editor of TELEGRAPH AGE was immediately besieged from all parts of the country by correspondents urging that the subject be not allowed to drop, but that some steps be taken by the telegraphers themselves to inaugurate a relief system for incapacitated telegraphers, as it was conceded by the Old Timers and all others who had given the subject consideration, that such a system was very greatly needed, but as to just what direction this relief system should take, whether for a home or for pensions or for some other method, there was a diversity of opinion.

The Editor of TELEGRAPH AGE submitted the matter by letter to Mr. Carnegie for his judgment as to the most feasible plan, and in reply Mr. Carnegie emphatically declared himself against the home idea, and in favor of some system based upon the pension or superannuation scheme, and he has declared that if a feasible scheme can be

gotten up that he should be glad to give a considerable sum towards it.

Further details, with which it does not seem wise to burden this letter, will be found in the printed reports of the Old Timers' Association for 1900 and 1901, New York Sun, December 5th, 1901, New York World, January 15th, 1902 and Telegraph Age January 16th, 1902.

A few representative telegraphers of New York issued a limited invitation for a meeting at the New York Press Club on March 20th last to take up the subject where the Old Time Telegraphers had dropped it, and to see if a practicable plan could be devised.

The meeting, of course, was merely a nucleus of what promises to have national scope, as it intends to place itself in communication with telegraphers in all the chief centres of telegraph industry in the United States and Canada, and if possible, secure harmonious action.

At this meeting the chairman was directed to appoint a committee of five prominent telegraphers with power to add desirable persons to the number of its members, who were to thoroughly consider the subject of pensions or other methods of relief, and if possible, formulate a plan which, after consideration and adoption at a subsequent meeting of telegraphers, should be submitted for approval and co-operation to all the important telegraph centres of the country.

Tentatively this committee has decided that its labor should be governed and given direction by the following considerations:

That no plan should be considered that would interfere with the work being carried on by the Telegraphers' Mutual Benefit Association or the various insurance and aid societies.

That only a plan of relief for incapacitated and aged telegraphers referred to in the discussions of the Chicago Press Telegraphers, and the Old Time Telegraphers and in Mr. Andrew Carnegie's communication should be considered.

That such plan should merit the approval and support of telegraph employers, and that the scheme should embrace all persons employed in commercial telegraphy, including the press in the United States and Canada.

That the plan should not be characterized by any humiliating color of charity, and that it be supported by the contributions of all telegraphers who wish to participate in its benefits.

There is no disposition on the part of the committee to ask the proprietors of the commercial systems to render any assistance that will not be deemed by them to be mutually advantageous.

It has also been suggested tentatively, that there could be two funds established, one in the nature of a gratuity and another in the nature of an annuity. The former to be built up from such contributions as may be received through the generosity of Mr. Carnegie and others, or from proceeds of entertainments, etc., and only the interest thereof used in an equitable manner for the benefit of those eligible for assistance.

The latter to comprise the amounts paid in by members and telegraph companies for the benefit of the annuitants or pensioners under proper rules to be established, and that whatever amount is contributed to such fund by any company shall only be for the benefit of its own employees and not for those of any other company.

I am sure that the more thoughtful telegraphers realize that in many cases the Western Union and Postal Telegraph companies have been conspicuously generous towards old employees who have become pretty well worn out in their service; but it is thought by many that by a proper system of relief or pensions that the telegraph employers could, by contributing to such a system, not only relieve themselves of these sporadic cases which have taxed their magnanimity in the past and will probably continue to do so for some time to come, but would be enabled to rearrange their employment of labor upon a more systematic basis, insuring to themselves the advantages of the experienced service of their employees for a greater length of time and under more favorable conditions; the laborers becoming less restless and worried about their futures and making less effort to seek other fields of industry for the purpose of protecting themselves and their families against the ravages of time which their small salaries are not adequate to meet.

There can be no doubt but that aside from the ultimate purpose of providing pensions or other practical assistance to an unfortunate but inevitable class of employees, that the considerate co-operation of employers in caring in a business manner for the physical interests of their employees would create an influence whose importance in relation to capital and labor is becoming more widely appreciated by wise men every year. It is an influence that tends towards co-operation and must surely promote between the two effectively, though silently, that harmony which is the basis of their common prosperity.

The committee is very desirous of securing your advice and assistance in behalf of the telegraphers whom it represents, and would feel very grateful if you will either act yourself or designate some one in your company to act with the committee to enable it to dispose of the subject committed to it to the best advantage of all concerned.

It is thought by the committee that your position in a company that has attained large proportions and employs a large number of telegraphers, should entitle it to be represented by you in a matter of such importance to the telegraph employees, and the committee is confident of your good offices in furthering telegraphers' interests in any consistent and reasonable manner, and will be glad to hear from you at your earliest convenience and to receive any suggestions from you, or to answer any questions which you may desire to make.

Col. A. B. Chandler writes under date of May 1 :
"Your excellent letter of 28th ult., received and appre-

ciated. I need only say now that I am in full sympathy with the purpose expressed, that of devising and putting into effect a plan for the relief of aged, disabled, or partly disabled telegraphers. I do not feel sure that I shall be able to render such aid in the matter as seems to be expected of me, but, on my return to New York, about the middle of May, I hope to confer with you, and perhaps others, concerning it, and if I can help so worthy a cause, even in small measure, I shall be very glad to do so."

Mr. George G. Ward, had this to say on May 8.

"I have received your note relative to the pension scheme of the telegraphers of America. I am very sorry I have not the time to go into this question with you as I am sailing to-morrow for Europe. You will remember, however, that I gave you my views on this subject some time ago. I trust your committee will be able to devise some plan by which Mr. Carnegie's offer can be accepted and the fraternity taken care of in their old age."

Montreal, Canada, May 13th, 1902.

Mr. C. R. Hosmer, writing from Montreal on May 13, said:

"I beg to acknowledge receipt of yours of the 9th, with reference to carrying into effect some plan for the care of incapacitated and aged worthy telegraphers in the United States and Canada. I might say that the Canadian Pacific Railway at its last annual meeting obtained authority from its shareholders to establish a pension fund, and the officers of the company are now endeavoring to work out some plan to accomplish this end. I think therefore you would have to leave the Canadian Pacific employees out of your proposed scheme. Personally, I would very much like to know that some provision had been made for the incapacitated and aged members of our profession, but I must confess that I do not see just how it could be worked out excepting through a pension fund, which would have to be adopted by each company, who would provide for its own employees. With kind regards, and hope you may be able to evolve some successful method of dealing with this worthy object."

Mr. H. P. Dwight, president and general manager of the Great Northwestern Telegraph Company of Canada writes from Toronto, under date of June 11:

"Yours of May 9th came duly to hand. The question referred to is evidently a complicated one, and I do not at present feel qualified to offer any advice or suggestions in the case. The necessity for some action in the matter, I presume, is more evident with your people than it is with us on this side of the border, although I would not like to say that there is no need for such a scheme with us. All I can say meantime, is, that if any plan can be reached in the interest of all concerned, we shall be very glad to take our part in the matter."

Col. R. C. Clowry, president and general manager of the Western Union Telegraph Company, writes on August 25th, 1902:

"My time has been so taken up with matters pressing for immediate attention that I have been able to give only superficial consideration to the letter from the Pension Committee of the New

York telegraphers which I received under date of May 9th.

"I understand that some reply from me is needed to round out the correspondence on the subject which is shortly to be published, and I therefore write briefly to say that while I am personally in sympathy with any well-considered scheme for the betterment of the condition of telegraphers as a class, I see many practical difficulties in the way of carrying out any comprehensive pension plan.

"Before the committee gets very far into the subject it will, I fancy, reach the conclusion that no pension system can be successful which is not established and managed in conjunction with the telegraph companies; and the subject is a very large one for the companies to consider. While pension systems varying somewhat in detail but having a common basis of equal contributions from employer and employees have for years been in apparently successful operation on several large railroads, the conditions of service in the telegraph field are not the same as in railroad work, and the considerations which probably governed the railroad companies in inaugurating and pushing the pension scheme would not be equally potent with the proprietors of the telegraph properties. This is the first time, too, that it has been proposed to unite in such a scheme the employees of more than one company.

"I have no statistics on the subject, but I am under the impression that the number of telegraph operators who are engaged in the service at the age of 65 and 70 years (the age when most pension systems are operative), and who at the age are incapacitated for work and in need of financial assistance, cannot be very great, and it has been the policy of, I think, all the companies to take care of such employees in one way or another.

"I do not know to how great an extent this agitation of the subject may be based on a desire to profit from Mr. Carnegie's kind offer to make a contribution which would form a nucleus for a pension fund, but I am afraid that any plan of assessment based on an adequate contribution from the employee to the large sum which it would annually be necessary to raise to afford the relief contemplated, would be bitterly opposed by many of the employees on whom it would be compulsory."

Write your name in kindness, love and mercy on the hearts of those you come in contact with day by day, and you will never be forgotten.—Chalmers.

Trust no future howe'er pleasant,
Let the dead past bury its dead,
Act, act in the living present,
Heart within and God o'erhead.

—Longfellow.

Sample copies of TELEGRAPH AGE will be sent free to all intending subscribers.

General Mention.

Mr. E. O. Shock, of the Postal Telegraph-Cable Company, Baltimore, Md., is absent on an extended vacation for the benefit of his health.

Charles Malone, M. D., for many years an operator for the Western Union in their Boston main office, has resigned to follow his profession in that city.

Mr. F. C. Hackett, chief operator of the Western Union Telegraph Company, Cleveland, O., in renewing his subscription, writes: "I can't get along without it."

The Buffalo Electrical Aid Association, John G. McNerny, president, and George W. McCoppen, secretary, has just issued its semi-annual circular, which shows that its condition financially is strong.

Mr. J. F. Malone, who represented The United Press at New Haven, Conn., up to the time that concern ceased to do business, is still a resident of the Elm City, where he is prospering in commercial pursuits.

The young King of Spain is reported to have satirically remarked the other day that, while a hundred years ago it took a day to carry news from one given point in Spain to another, now with the telegraph, it took but two days.

Mr. J. A. Cahoe, of the Postal Telegraph-Cable Company, Louisville, Ky., has resigned to accept a position with the Western Union Telegraph Company at the same point. Mr. Cahoe is the Louisville representative of TELEGRAPH AGE.

Mr. Thomas A. Edison recently wrote: "I believe that within thirty years nearly all railways will discard steam locomotives and adopt electric motors, and that the electric automobile will displace the horse almost entirely. In the present state of science, there are no known facts by which one could predict any commercial future for aerial navigation."

The Railroads.

Mr. W. A. Freese has been appointed superintendent of telegraph for the Chicago & Alton railroad lines, with headquarters in Bloomington, Ill.

The Southern Railway Company, the system embracing a majority of the railroad lines south of the Potomac and Ohio rivers, has renewed its leases with the Western Union Telegraph Company.

Ralph Peters, general superintendent of the Southern system, Pennsylvania lines, has been made chairman of a committee appointed by the American Railway Association to outline a new form of telegraphic code to be used on all the railroads of the association. The committee was appointed at a recent meeting of the association, and instructed to prepare a code that will be suitable for general adoption. It is the intention of the association to adopt, if possible, a cipher code for all lines through the country, and in this way not only simplify the work of the telegraphic depart-

ments on different lines, but net a material saving in the matter of telegraphic expenses.

The Erie Railroad has recently completed the installation of a storage battery plant at its station at Huntington, Ind. The plant consists of 240 cells 6 A-H Willard battery on the mains, giving both polarities at 120 volts, and eleven cells of the same capacity working eleven locals. The eleven local cells are not duplicated in the plant but are kept on the sounders constantly, taking their charge along with the mains during the eight-hour charging period. The mains are charged in banks of thirty cells against a pressure varying from ninety-eight to one hundred and ten volts from the exciter of the Ft. Wayne and Southwestern Traction Company's power plant near the station. Eight wires are batted, four from each polarity, and a marked improvement is found in their working as compared with the gravity.

What the Leading Electrical Paper Has to Say About Pocket Diagrams.

The new volume, "Pocket Edition of Diagrams and Complete Information for Telegraph Engineers and Students," by Willis H. Jones, and published by TELEGRAPH AGE, which is having such an enormous sale, is thus referred to by the Electrical World and Engineer, the leading electrical journal of the world:

"Telegraphers are severely practical men and not theorists, and Mr. Jones, a practical telegrapher himself, has, in this book, undertaken to lay before his fellow-workers all that is modern in telegraphic apparatus and practice. He, moreover, uses the simplest English in his descriptive matter, which no one can very well fail to comprehend. Theory has been studiously avoided, except to a very limited extent, where it was found necessary as an aid to a better understanding of the principles involved in the construction and operation of the apparatus described.

"The 260 pages of subject-matter are well printed, and the 126 specially-drawn illustrations are very clear in treatment. The illustrations consist of diagrams showing the wire connections between the various instruments constituting a set; between apparatus and instruments, etc., and form a very important feature of the book. The work possesses an originality that cannot fail to be interesting to all telegraphers and telegraph engineers. It is divided into 41 chapters, and as these cover such a wide range of subjects their headings are given herewith:

* * * * *

"It is evident from the above list of contents that the work is thoroughly modern, and since it bears the stamp of authority (Mr. Jones being associated with the engineering staff of his company) it will probably become one of the standard works on practical American telegraphy. It is written primarily for operators for the purpose of instructing them about the apparatus with which they have to deal, and this educational feature cannot fail to redound to the benefit of the telegraph service, if the ambitious and energetic operator will recognize in it an opportunity to better his condition. The work is 'pocket size' (4½ inches wide by 7 inches high), and bound in stout flexible leather."

The Old Timers' Reunion at Salt Lake City.

The twenty-second annual reunion of the Old Time Telegraphers' and Historical Association and of the Society of the United States Military Telegraph Corps, will be held this year at Salt Lake City, Utah, the date being set for Wednesday, Thursday and Friday, September 10, 11 and 12. The headquarters of the visiting telegraphers in that city will be at the Kenyon Hotel, an excellent hostelry, conducted on the American plan, charges being at the rate of \$2.50 per day and upwards. Members who expect to attend the reunion and who desire to secure hotel accommodations in advance, are requested to promptly notify Mr. George C. Fenton, of Salt Lake City, chairman of the hotel committee, who will gladly undertake to arrange for rooms as may be re-

ted States Military Telegraph Corps. These brief, formal function completed, the rest of the entire stay will be given over to the pleasures of the reunion. In the afternoon of the same day, at half-



GEORGE H. CORSE, OF OGDEN, UTAH.

President of the Old Time Telegraphers' and Historical Association.

quired. As will be observed from the following programme, a pleasant round of entertainment, covering the three days of assemblage, has been arranged for the enjoyment of all who attend.

On the first day, Wednesday, September 10, at ten o'clock in the morning, the joint meeting of the Old Time Telegraphers' and Historical Association and of the United States Military Telegraph Corps will occur at the Kenyon Hotel. This will give the members an opportunity for a fraternal meeting, to exchange greetings, and to renew the friendships formed in years past at similar gatherings. It may be assumed that the half-hour assigned for this purpose will be a thoroughly enjoyable one.

The business meeting of the Old Time Telegraphers' and Historical Association will follow at half-past ten, held in the same place, succeeded at half-past eleven by a similar meeting of the Uni-



BELVIDERE BROOKS, OF NEW YORK.

Vice-president of the Old Time Telegraphers' and Historical Association.

past two o'clock, a drive about the city will be taken. This will include a visit to Fort Douglass,



JOHN BRANT, OF NEW YORK.

Sec'y-Treas. of the Old Time Telegraphers' and Historical Association.

to Salt Palace, and to the grave of Brigham Young. For the remainder of the day, according

to the programme, the time will be given over to a "go-as-you-please," and the many attractions of the city of Salt Lake, which for so many years has been the Mecca of all good Mormons, will doubtless come in for pleasant inspection.



CHARLES B. HGERTON, OF DENVER, COL.
Chairman of the Reception Committee.

Salt Lake City is now a large and bustling town, and will no doubt agreeably surprise many, espe-



J. B. TWIFORD, OF SALT LAKE CITY.
Member of the Executive and Reception Committee.

the beauty of its streets and of much of its architecture. Several views of Salt Lake buildings are shown herewith, including the tabernacle; the temple, with the tabernacle in the background; the interior of the tabernacle and the large organ; a view on the main street, and the Pavilion and beach at Saltair, on the Great Salt Lake.

On Thursday, September 11, at ten o'clock, a trip is projected to Saltair, distant some twelve or



fourteen miles directly west from the city. This place is the Coney Island of Salt Lake, and here a day's outing will be had, the excursionists returning to the city at half-past six in the afternoon. In the evening a banquet will be given at the Kenyon Hotel. This will be a subscription affair, tickets for which have been placed at \$2.50 apiece. It is proposed to make this a most delightful social event.

On Friday, September 12, the last day of the reunion, an organ recital on the famous instrument at the great Mormon Tabernacle is announced for half-past ten o'clock in the morning.



At the same time an excellent opportunity will be afforded for an inspection of the temple grounds, which are extensive and beautiful. At a quarter of one a trip to Ogden, situated between thirty and forty miles to the north, has been planned, the trip being made over the Oregon Short Line. A drive through the interesting Ogden Canyon will immediately follow, returning in

cially those from the distant East, not only in its extent, but in the amount of business done there,

season to catch the train due at Salt Lake City at a quarter to six.

The several committees of the reunion are composed of the following named gentlemen:

Transportation Committee.—T. M. Schumacher, chairman, traffic manager Oregon Short Line; C. A. Tripp, commercial agent Missouri Pacific Railroad; C. A. Walker, general agent Chicago and Northwestern Railroad; L. L.

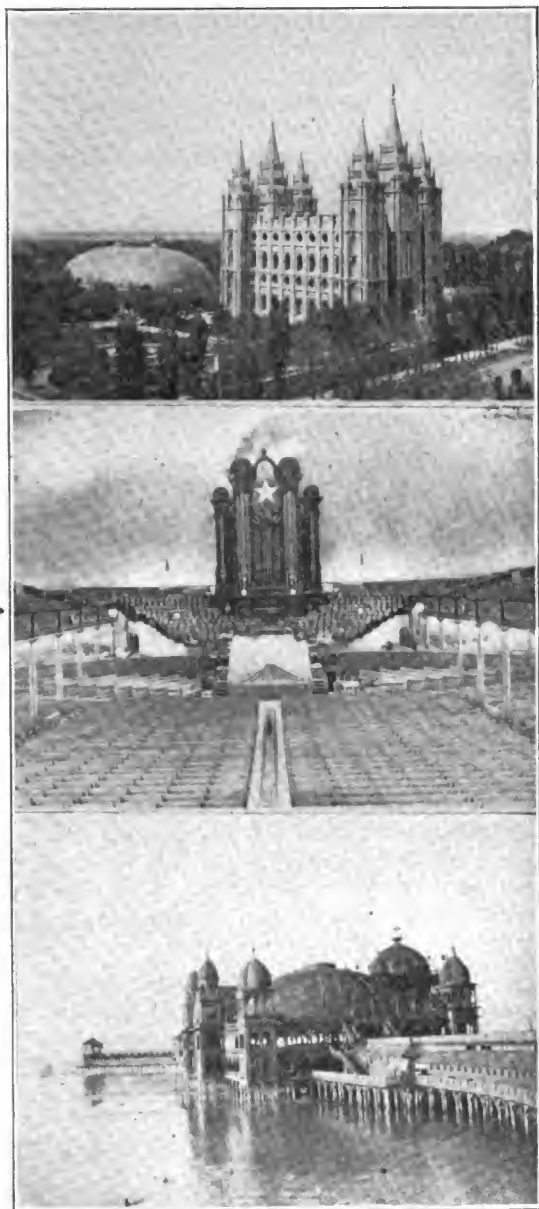
Lewis, paymaster Rio Grande Western Railroad, all of Salt Lake City.

Reception Committee.—C. B. Horton, chairman, assistant superintendent Western Union Telegraph Company, Denver, Col.; Arthur W. Copp, The Associated Press; J. B. Twiford, manager Western Union Telegraph Company, and Samuel F. Fenton, all of Salt Lake City.,

The officers of the Old Time Telegraphers' and Historical Association are as follows: George H. Corse, president, Ogden, Utah; Belvidere Brooks, vice-president, New York; John Brant, secretary-treasurer, New York. Executive Committee: L. B. McFarlane, Montreal, Can.; H. C. Hope, St. Paul, Minn.; H. J. Pettengill, Boston, Mass.; J. J. Dickey, Omaha, Neb.; E. T. Hulaniski, J. B. Twiford, W. J. Shealy and G. W. Jones, Ogden, Utah, and L. L. Downing, Salt Lake City, Utah.

The officers of the United States Military Telegraph Corps are given below: Col. Wm. B. Wilson, president, Holmesburg, Philadelphia, Pa.; Wm. L. Ives, vice-president, New York, and J. E. Pettit, secretary and treasurer, Chicago, Ill. Executive Committee: E. Rosewater, chairman, Omaha, Neb.; A. H. Bliss, Chicago, Ill.; Col. A. B. Chandler, New York, N. Y.; W. R. Plum, Chicago, Ill.; George C. Maynard, Washington, D. C.; D. Wilmot Smith, Breckenridge, Minn.; R. B. Hoover, New York, N. Y.; L. A. Somers, Cleveland, Ohio, and J. D. Cruise, Kansas City, Mo.

The question of raising the age limit having been suggested in connection with membership in the Old Time Telegraphers' Association, the matter has become the subject of considerable agitation, and it appears that there has been an unusual amount of feeling aroused favoring a change. At the present time a person who has been in the telegraph service twenty years is eligible to membership. This makes it possible for a telegrapher entering the service as a messenger boy at ten years of age, to be eligible to membership in the association when he has attained his thirtieth year. The result is that the organization is rapidly becoming a "Young Time Telegraphers' Association." The question of raising the age limit to twenty-five or thirty years instead of twenty years, as at present, has been brought up at previous reunions. It may be well for the members to be prepared to take some action on the subject at this meeting. The officers of the association have expressed an opinion that the age limit ought to be raised, and the secretary, Mr. John Brant, in his report submitted at the Montreal Convention last year, used this language: "In scanning the applications for membership during the year past, your secretary has been impressed with the youthfulness of many of the applicants, and, after mature consideration, has reached the conclusion that if this organization is to be known as 'The Old Time Telegraphers' Association' it will be necessary to make the eligibility limit twenty-five or thirty years' service, instead of twenty, as at the present time."



Downing, commercial agent Chicago, Milwaukee and St. Paul Railroad, and Donald Rose, commercial agent Illinois Central Railroad, all of Salt Lake City.

Hotel Committee.—George C. Fenton, chairman; C. F. Warner, general agent Atchison, Topeka and Santa Fé Railroad; R. S. Campbell, manager Utah Light and Power Co., and I. H.

Since the last meeting of the Old Time Telegraphers' and Historical Association and of the United States Military Telegraph Corps, held at Montreal, a year ago, the following deaths among the forty-niners who are members have occurred: Ira R. Amsden, of Buffalo, N. Y., December 11, 1901; David McCargo, of Pittsburg, Pa., January 25, 1902; James L. Mingle, of New York, January 26, 1902, and Charles F. Wood, of Boston, June 14, 1902. The members of the United States Military Telegraph Corps, who have died during the same period, are: D. E. Martyn, September 20, 1901; W. H. Eckman, October 6, 1901; W. J. Bodell, October 7, 1901; R. S. Gough, December 18, 1901; J. H. Emerick, May 11, 1902.

Business Notices.

The Hammond typewriter has long held a high place in the typewriting world. The ease and speed with which the machine is worked, the beauty of its type, and the fact that the written page is always in sight, are excellencies that have combined to make this a well-liked instrument among telegraph operators and the public generally. Never before in the history of the company have its sales been so large as at the present time, its export trade increasing alike with its domestic output.

The name of D. A. Mahoney, of the operating department of the Western Union Telegraph Company, Philadelphia, Pa., has become familiar to our readers by reason of his persistent advertising in these columns. He is the special representative of the Philadelphia Typewriter Exchange, which does a large typewriter renting and selling business, as so many have occasion to know; and who also has met with marked success in the special handling of the Fay-Sholes typewriter. Correspondence is invited by Mr. Mahoney.

If you are planning a trip to the mountains this summer, be sure to send for "Mountain and Lake Resorts," a little book just issued by the passenger department of the Lackawanna Railroad. It will tell you about some of the most delightful places in the East. The book is amusingly illustrated, and contains a series of amusing sketches, entitled "The Experiences of Pa." It will be sent on request, accompanied by five cents in postage stamps to T. W. Lee, General Passenger Agent, New York City.

Messrs. Foote, Pierson & Co., of 82-84 Fulton street, New York, the well-known manufacturers of telegraph and other electrical apparatus, advertise a few of their popular telegraph specialties on another page. These, as well as others not mentioned, all have an accepted place, and because of their superiority, both in design and construction, are highly popular among users. The Argus lightning arrestor, their main-line telegraph combination instruments, wireless telegraph coils, and the portable testing set known as the Delta, only need this reference to recall their high-grade excellence.

The Twentieth Century Telegraph Key is abundantly attesting its usefulness. It has proved to be one of the best devices to overcome "lost grip" ever offered to the operator. Mr. E. S. Russell, of the operating department of the Postal Telegraph-Cable Company, 253 Broadway, New York, agent for the sale of these keys, says that he has sold over 200 of them to operators in all parts of the United States, in every instance to those who were suffering from cases of lost grip. Without exception the report in each case has been that the sufferer has experience substantial relief by their use. No testimony of the utility of the key for the purposes designed could be stronger. Mr. Russell will be pleased to hear from his fellow operators who may be troubled with lost grip, and reference is made to his advertising announcement in this issue.

Recent Telegraph Patents.

A patent, No. 706384, for a fire alarm telegraph thermostat system, has been awarded to R. G. Callum, Washington, D. C.

Patents Nos. 707007 and 707008, have been granted to Prof. M. I. Pupin, of Yonkers, for a system multiple telegraphy.

A patent No. 706251, has been granted to J. W. McDonald, of Larimore, N. D., for a mechanical telegraph transmitter. Morse characters are indicated on the rims of wheels, any one of which can be rotated to send its character to line by depressing a key which mechanically connects the disk with a rotating shaft.

Organization.

A local of the International Union of Commercial Telegraphers has been organized at Birmingham, Ala.

Four Western Union operators were recently dismissed at Buffalo, N. Y., for, it is said, alleged connection with the telegrapher's union; and two Western Union men at San Francisco for the same reason, were dropped from the pay-roll, making six in all at that point.

A call for a convention of commercial telegraphers, to be held in Chicago on September 20 has been sent out. The object is the forming of an international organization. The call was sent to forty-three cities throughout the United States and Canada where, it is said, local unions have been formed.

Late New York Visitors.

Mr. J. E. Peacock, manager Western Union Telegraph Company, Jacksonville, Fla.

Mr. Charles A. Dalton, superintendent of telegraph of the Southern Railway, Washington, D. C.

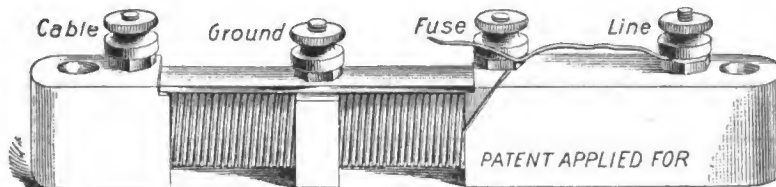
Mr. Clinton P. Russell, late general manager of the Postal Telegraph-Cable Company, of Dallas, Texas.

Foote, Pierson & Co.

A FEW OF OUR POPULAR TELEGRAPH SPECIALTIES

The Argus Lightning Arrester

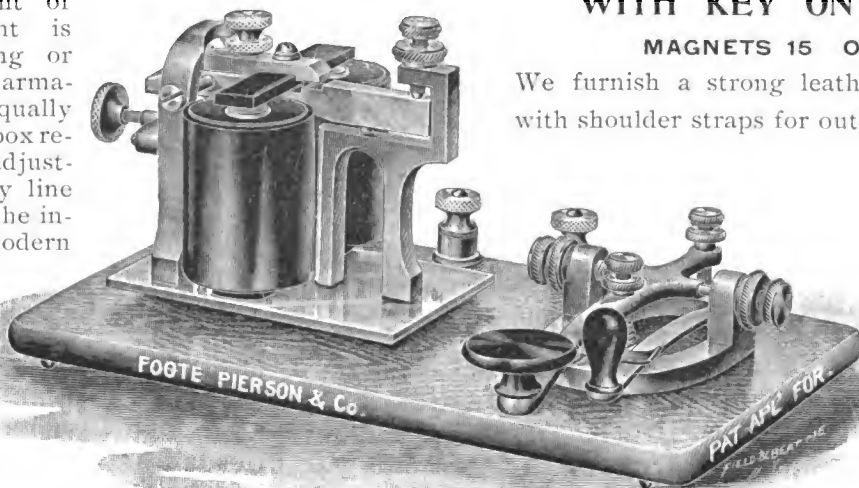
The most reliable and efficient protection to instruments and cables against lightning ever known.



It interrupts lightning of any degree without grounding or disabling the line. It is always ready.

Our Main Line Telegraph Combination Instrument

The adjustment of this instrument is done by raising or lowering the armature. It is equally as delicate as a box relay and can be adjusted to meet any line conditions. The instrument is in design and its use has made the box relay and pocket relay almost obsolete as it is cheaper and far better.



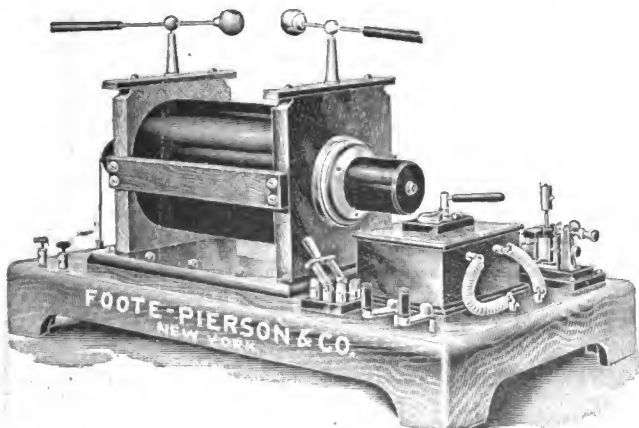
WITH KEY ON BASE.

MAGNETS 15 OHMS.

We furnish a strong leather carrying case with shoulder straps for outside line testing.

It makes the most convenient and efficient instrument for this purpose known.

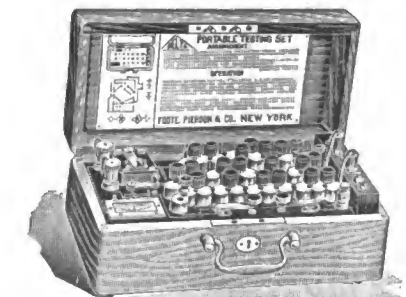
Coils for Wireless Telegraphy



WRITE FOR OUR NEW CATALOGUE.

THE DELTA Portable Testing Sets

A Full Line of
Measuring
and
Testing
Instruments
In Stock



FOOTE, PIERSON & CO., 82-84 FULTON STREET,
NEW YORK CITY, U. S. A.

THIS WILL INTEREST YOU

IF YOU ARE PROGRESSIVE

THE HAMMOND TYPEWRITER

THE LEADING TYPEWRITER OF THE WORLD



HAS ALL THE GOOD FEATURES OF EVERY OTHER TYPEWRITER, AND, IN ADDITION, THE FOLLOWING EXCLUSIVE FEATURES, OF WHICH NO OTHER TYPEWRITER POSSESSES EVEN ONE:—100 DIFFERENT TYPE, IN 26 LANGUAGES, ALL INTERCHANGEABLE. PERFECT AND PERMANENT ALIGNMENT. UNIFORM IMPRESSIONS. ACCOMMODATES ANY WIDTH PAPER. UNLIMITED SPEED. GREATEST DURABILITY

PRODUCES THE MOST BEAUTIFUL WORK.
WRITES LIKE PRINT—PRINTS LIKE WRITING.

TO THESE CONCEDED PERFECTIONS THE HAMMOND ADDS

A CROWNING GLORY

BEST MANIFOLDING WHETHER IN QUALITY OR QUANTITY

THE HAMMOND TYPEWRITER CO. New York, N. Y.

TELEGRAPHERS WILL FIND that the No. 2 “NEW MANIFOLDING” HAMMOND TYPEWRITER possesses all the requirements to fit it for their use. They are asked to examine it, to test it, and to compare its work with that of other writing machines

The Western Union Time Service.

Standard Time in these days of standard requirements is becoming not only an important, but an absolutely necessary factor in the conduct of general business. This fact is more and more apparent as commercial exactions grow more insistent. The method of determining, and the system of furnishing to all who require it, time



CHARLES H. MURPHY, OF NEW YORK.

Manager Western Union Time Service, Eastern and Southern Divisions.

that shall be correct and reliable under all circumstances, has developed into a business of very large proportions, with wide ramifications of service extending over the entire country. In one form or another correct time is publicly indicated in most of the large cities of the United States.

The idea of dispensing correct, or standard time, originated with the late James Hamblet, who established the time system for the Western Union Telegraph Company. He became the manager of the new bureau thus created, and continued as such until his death, which occurred in the Borough of Brooklyn, New York, in January, 1900. Mr. Hamblet was a man of keen perceptions, a genius in many ways, and attained a high reputation as an horologist. He was born in Boston, Mass., in June, 1824, and early in life became one of the most accomplished mechanics of his day. For years as the trusted employee of William Bond and Son, he was engaged in the Eastern metropolis in the construction of marine chronometers, regulators for noting sidereal time, and many other instrumental accessories of the observatory, requiring in their manufacture the highest skill of the trained craftsman. His name is found upon the observatory apparatus at Harvard and Columbia Universities, and at many points elsewhere, where the great telescopes of the fifty years past have been placed. Subsequently Mr. Hamblet gave his attention for a

number of years to the manufacture of electrical apparatus, and later, from 1870 to 1876, just prior to his connection with the Western Union Telegraph Company, he had charge of E. Howard and Company's extensive clock works at Boston, where his skill was successfully applied to the building of astronomical regulators. This long preliminary work eminently fitted him for the future development of the time service to which he was now committed, and whose commercial control was logically undertaken by the telegraph company.

The usefulness of the time service was a practical proposition, and from the first grew in public favor, and when its author relinquished his work in New York at the close of a long and active life, it had expanded into an important department of the Western Union Telegraph Company, extending to all large and many smaller cities. At the outset Mr. Hamblet constructed and placed a clock of his own design for standard time purposes in the Western Union Building, New York. This was in use until 1885, when the company made an arrangement with the Self-Winding Clock Company of New York, and commenced putting their clocks into service. These clocks, which are now so familiar everywhere, are wound every hour by a small electrical motor attached to the clock movement, the electric current for driving the same being obtained from two small cells of battery placed in the clock case, the hands of the clock being connected by the time signals. By reason of their regular, uniform winding, they are the most accurate of time-keepers, and by the system which hourly corrects them, and which,



F. W. BRAINERD, OF CHICAGO.

Manager Western Union Time Service, Western Division.

each day, at noon, corrects the master clocks, as well, which controls them, an absolutely uniform time service has been provided.

The time service is controlled from the Naval Observatory at Washington by the electrical transmission of time beats. Five minutes before

twelve o'clock, Eastern time, each day, there is an almost absolute cessation of business on the wires, and an almost unbroken chain of circuits for time service is made up from Washington, reaching to the uttermost boundaries of the United States. The signals pass directly into the clocks, with which the wires are connected, and so give the time to all subscribers, whoever they may be, bankers, brokers, jewelers, public buildings, newspaper offices, and also to innumerable business houses and private residences throughout the country.

At the same moment the time balls, so familiar an object not only in New York, but in the majority of the larger cities, also indicate the time by their fall at noon. The original purpose of the ball at New York, the one first established, and which is placed on the roof of the Western Union Building, was to provide mariners with a ready means of accurately regulating their chronometers. Balls were afterwards erected at other seaports for similar purposes. The convenience of these time balls to the public is so generally recognized and depended upon that they have come to be regarded almost as a necessity, and their removal for any cause would doubtless be resented by the people almost as much as the withdrawal of any other great public utility, yet they are furnished free of all charge.

The death of Mr. Hamblet, and the growing importance of the time-service department to the Western Union Telegraph Company, determined that company to make some radical changes in its management in order to enable it to more fully cover the great field, and the enormous possibilities of usefulness confronting it. To this end, Mr. Charles H. Murphy, formerly clock inspector of the company at Denver Col., and afterwards district manager at Omaha, Neb., where he accomplished most excellent results, and who is regarded as perhaps the best equipped person in the service for the place, was called lately to New York and placed in charge of the time bureau. Already, in obedience to his general instructions, he is practically creating a new department, and has thoroughly reorganized his staff. The entire working and office equipment is being concentrated and placed in larger quarters on the street floor on the Dey street side of the building. Here will be located the recording master clock, and the seconds beat time transmitter through which the time signals are conveyed.

When all contemplated changes are completed, the important time service, not alone in New York, which is the chief office and directing head, but elsewhere throughout the country, will, it is expected, be guided by a more perfect harmony of purpose, and consequently of even higher efficiency than heretofore. Such intelligent efforts as are now being made to furnish standard time to the country at large in a more ample and comprehensive way than ever before attempted, will no doubt meet with the hearty appreciation and financial support it deserves.

As it is impossible to reach every part of the

country from one central point, the time service for convenience is divided into divisions, of which there are four, corresponding to those of the Western Union Telegraph Company. These in turn are subdivided into districts, over each of which there is an inspector, who is stationed at the headquarters of the district superintendent of telegraph. The business of the inspector is to carefully maintain the service in his district and see that it is kept in proper condition. Each district is furnished with a sub-master clock, each being fitted with a device for closing the circuit in order to synchronize all other clocks in the district each hour, except at twelve o'clock, at which time it omits sending its own signals, and with all the subordinate clocks in line, is itself synchronized. Reports are made by the inspector to the local telegraph superintendent, who in turn reports to the division superintendent, final transmissions of the same being made to New York.

Chicago ranks next to New York as being the most important station in the country. The local manager at that place is Mr. F. W. Brainerd, who has been in charge since the time service was originated. Mr. Brainerd has been instrumental in creating the time service in the Western Division, and to him all credit is due in bringing it up to its present high state of effectiveness. His position in the Western Division is closely analogous to that held by Mr. Murphy in the Eastern and Southern divisions.

TELEGRAPH AGE will furnish operators with just the kind of practical information they need.

LETTERS FROM OUR AGENTS.

[Advertising will be accepted to appear in this department at the rate of five cents a word, announcements to be enclosed with a border and printed under the name of the place of the advertiser. The special local value attached to advertising of this character will be apparent. Our agents are authorized to solicit advertisements for these columns, and further information on this subject may be obtained on application.]

PHILADELPHIA, PA.

My Motto—Honorable Dealing. D. A. Mahoney, Special Representative Philadelphia Typewriter Exchange, main office Western Union Telegraph Company, Philadelphia, Pa. **DON'T** think of applying at this office for a position unless you can use the "Mill," and **DON'T** think of arranging to buy or rent a new or remodeled typewriter until you have consulted me. All makes rented \$3 per month. Write or telegraph for inviting terms.

WESTERN UNION.

Mr. W. Morrison, of this office, is spending a vacation of two weeks at his home in Delaware. W. F. Sherer was suddenly summoned to Wash-

IF
THERE IS ANY PLACE ON
EARTH WHERE A GOOD
TELEPHONE IS NEEDED
IT'S IN RAILROAD WORK

Moral: buy

KELLOGG

THEY HAVE STOOD THE TEST OF THE
LARGEST EXCHANGES IN THE U. S.

*A word about Kellogg Transmitters. A record that
demonstrates our right to this statement:*

ABSOLUTELY UNIFORM

In the past year over 72380 Kellogg Transmitters have been put
on the market, and out of that number only one purchaser has ex-
pressed his dissatisfaction and asked for his money back.

If it's a **KELLOGG** that's all you need to know about a Transmitter

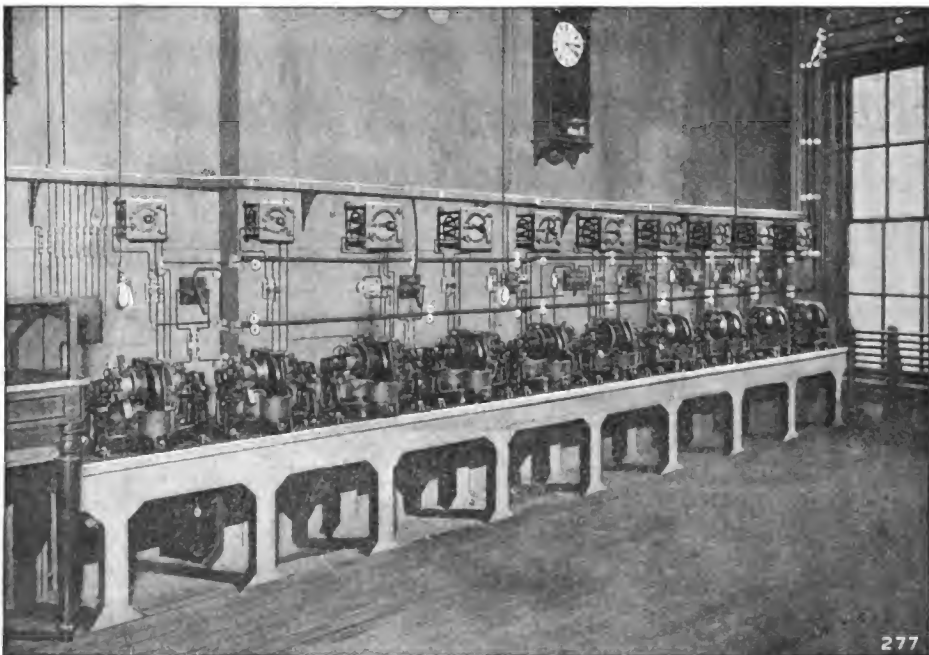


CROCKER--WHEELER COMPANY

MANUFACTURERS AND ELECTRICAL ENGINEERS

MOTO-DYNAMOS and DYNAMOTORS

For the Economical Supply of Electric Current for Telegraph Stations



WITH THESE MACHINES CITY CURRENT IS TRANSFORMED
TO PROPER PRESSURE AND MAINTAINED CONSTANT,
THEIR USE GREATLY REDUCES OPERATING EXPENSES,
ECONOMIZES FLOOR SPACE AND ADDS TO THE CONVEN-
IENCE OF THE PLANT

SALES OFFICES IN ALL LARGE CITIES

Office and Works

AMPERE, N. J.

ington, D. C., owing to the serious illness of his wife.

Recent arrivals are: J. Anderson, Memphis, Tenn.; W. C. Wrenn and J. J. Beasley.

J. C. W. Tawes, of Crisfield, Md., is a visitor here.

Up to the present writing nothing has been heard of Western Union Manager Hagenbuch, of Allentown, Pa., and H. M. Shultz, an operator in this office, both men having disappeared several weeks ago, baffling all efforts to locate them.

BOSTON, MASS.

Typewriters for sale, to rent and repaired. Remington, Smith, Densmore and all makes sold or rented on easy monthly terms to telegraphers. Send for samples, catalogues and full information to E. M. Bennett, Manager, The Typewriter Exchange, 38 Bromfield Street, Boston, Mass.

CHICAGO, ILL., POSTAL.

Edward Zimmerman, our west board wire chief, has resigned to accept a position as secretary of a gold mining company.

A. E. Wilder, our New York division chief, is spending a well-earned vacation. Assistant Chief Bohrer is filling his place.

S. D. Barger is assistant night chief of city lines division, vice Edward Stanton, who has returned to a wire.

Several of the regular men were placed on the extra list on account of failure to report on the day after pay-day.

A. T. Hickey and F. H. Williams are subbing at a broker office.

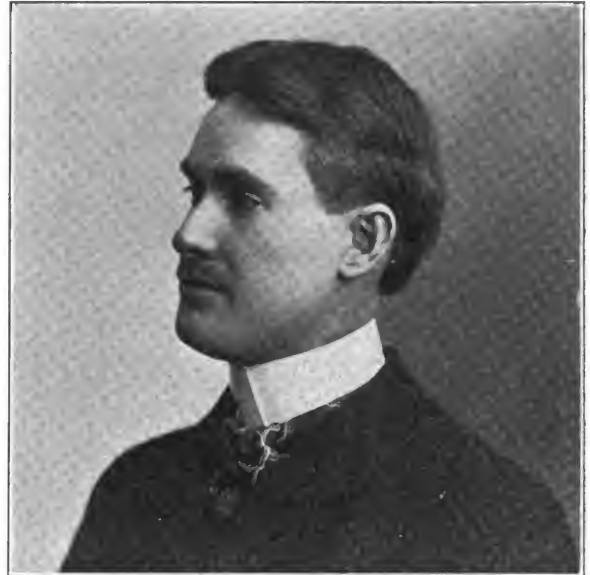
O. T. Anderson has resigned to accept a position with a brokerage firm at an increase in salary.

Chicago Division, No. 104, meets every first and third Saturday at 8 P. M. at Garfield Hall, 55th street and Wentworth avenue. The next meeting will be held Saturday, September 6. All O. R. T. men are invited to attend. O. T. Anderson, secretary and treasurer.

A PROMINENT CHICAGO TELEGRAPHER.

Dr. John C. Kinney, a prominent figure in this office, was born at Rock Island, Ill., April 28, 1866. He entered the telegraph service at Leavenworth, Kan., in 1885, to receive afternoon report. After a year's service at that point he returned to Rock Island to accept a position, taking report for the Western Union. Resigning after a short service he became assistant wire chief at the Rock Island Arsenal, Ill., a position he held for nearly five years. Desiring to again enter the telegraph field, he obtained the managership of the Postal Telegraph-Cable company's office at Rock Island, from which he was soon transferred to a similar position at Davenport, Ia. Resigning soon after, he went to the main office at Chicago, accepting a position as operator. Promotion rapidly followed, and he soon became assistant chief of the Metropolitan division, from which

he was transferred to be assistant chief of the Western division, later becoming loop chief. After this he was made chief of the Western division, and a year and a half ago became chief of the Eastern division.



DR. JOHN C. KINNEY.

Of the Postal Telegraph-Cable Company, Chicago.

In the meantime Mr. Kinney studied dentistry, and graduated from the Northwestern University in the dental class of 1899. He now has an office in the Masonic Temple, Chicago, where he is building up an excellent practice, largely, as it may be imagined, from among the telegraph fraternity.

BALTIMORE, MD., WESTERN UNION.

This office was honored recently by a visit from the following officials: President Clowry, Electrical Engineer Barclay, General Superintendent Brooks, and Superintendent Altberger.

On August 16 Wire Chief Louis D. Wilbourn was appointed chief operator of this company in Baltimore. Mr. Wilbourn entered the service of the Western Union as a messenger boy in 1870. Two years later he was an operator. In 1873 he entered the service of the Philadelphia, Wilmington and Baltimore Railroad Company, remaining with that company until 1879, when he re-entered the service of the Western Union, and has been in this office working hard ever since. Most of the time from 1879 to 1885 he was assigned to the New York quadruplex. In 1885 he was appointed traffic chief, and in 1888 wire chief, which position he has held continuously until his recent advancement. Mr. Wilbourn is a hard student, and one who has kept abreast of the times in all things electrical. He is very popular with the employees.

Mr. Daniel Lester has resigned to go with a telephone company, and Mr. Reuben Burman has resigned to enter other business.

Mr. W. V. Ardisson has returned to duty after several months' illness.

Recent visitors: Mr. L. C. Hall, chief operator at Norfolk, Va.; Mr. E. A. Maaske, all-night chief, Jacksonville, Fla., and Mr. A. Bowersock, Jr., manager of the Postal, Newport News, Va. Messrs. Bowersock and Maaske are "Baltimore boys."

NEW YORK CITY.

"My Old Virginia Home Upon the Farm," one of the sweetest songs published; "God's Will Not Ours be Done," (McKinley's last words) strong descriptive song with martial music; "Left on the Battlefield;" "Down Where the Cotton Blossoms Grow;" "I'll be With You When the Roses Bloom Again;" "Any Old Place I Can Hang My Hat is Home Sweet Home to Me;" "Heirloom Waltzes;" Zenda Waltzes;" "Utopian Waltzes;" "Metropolitan March and Two Step;" 18 cents each. If you want any other sheet music write to me about it. I can save you money. PIANOS SOLD ONE DOLLAR PER WEEK. Address, B. L. Brannan, 195 Broadway, New York.

WESTERN UNION—

New oak desks have been placed around the side of the walls where space could be found to accommodate additional wires. These desks are arranged to hold typewriters, the machines being stored underneath the tables.

Mr. A. E. Sink, manager of the operating department, is absent enjoying his annual vacation.

Mr. W. L. Apgar, has been promoted to the loop switch, vice R. Ferguson promoted to be an assistant traffic chief.

Mr. H. W. Sauer, one of the well known operators of this office, who has been absent some months past on account of poor health, visited friends here a few days ago, and his appearance indicated that he is on the mend.

Mr. F. J. Sheridan has been appointed in charge of the number sheets and records in the Eastern division. Mr. Sheridan, besides being a first class operator, is also an excellent wheat-stone man and tape puncher.

Mr. E. C. Cockey, superintendent of supplies of this company has at last been provided with a private office. This has been partitioned off from the large apartment on the fourth floor over which he has so long and faithfully presided. He has now one of the cheeriest of private rooms in the big building. There never was a doubt of the need of such a room, and its final acquirement will add greatly to the more convenient dispatch of business as well as to the personal gratification of the superintendent. The fresh tint of the walls which are adorned with many quaint, timely and pungent business mottoes, together with a fine and handsomely framed picture of Prof. Morse; the newly carpeted floor and other accessories of

a well appointed business office, all bespeak a degree of comfort and refinement altogether to the taste of the occupant. It was not strange then, when all was finished and pronounced correct, that Mr. Cockey should have had his "opening day;" and it is pleasant to reflect on the number who called to pay their respects on that occasion and who received as a souvenir of their visit a fragrant Havana cigar and a small bottle of red ink. But better still was the genial welcome that awaited all.

Mr. H. D. Rogers, the old timer, now a well-known manufacturer of manifold paper, has attained his sixty-eighth year, and he attributes his long life to having had hay fever for forty years.

R. L. Atkinson has been put in charge of the Jigger Switch, having as assistants C. W. Harrison, "Ham" Fitchett and L. E. C. Moore. Mr. Atkinson is the inventor of the "Atkinson Repeater."

Charles S. Pike is at Seagirt N. J., reporting the New Jersey troops sharpshooting contest.

George W. Patterson has resigned on account of poor health and will go to Salt Lake City, Utah, with his family where he will endeavor to recuperate.

Mr. Charles Edgar Rafford, secretary to Superintendent W. J. Dealy, of the commercial news department, will be married on September 1 to Miss Mabel Forson Irving, daughter of Mr. Gardner Irving, manager of the commercial news department, at his home at Garrison-on-Hudson.

Fred Catlin has returned to the office as an operator, but it is believed his superior talents will soon make him a mark for something better.

Anthony Young, for many years a member of the operating force in this office, and for some time past connected with a downtown broker, died on August 19, aged 43 years.

Mr. Gerrit Smith, of the electrical engineer's office, has returned from a vacation.

The districts presided over by Mr. E. M. Mulford, our superintendent, are being constantly enlarged by the addition of new offices in Pennsylvania, New Jersey and in some of the New England States.

POSTAL.

Manager C. Shirley and family have returned from a two weeks' vacation spent at Lake George, N. Y.

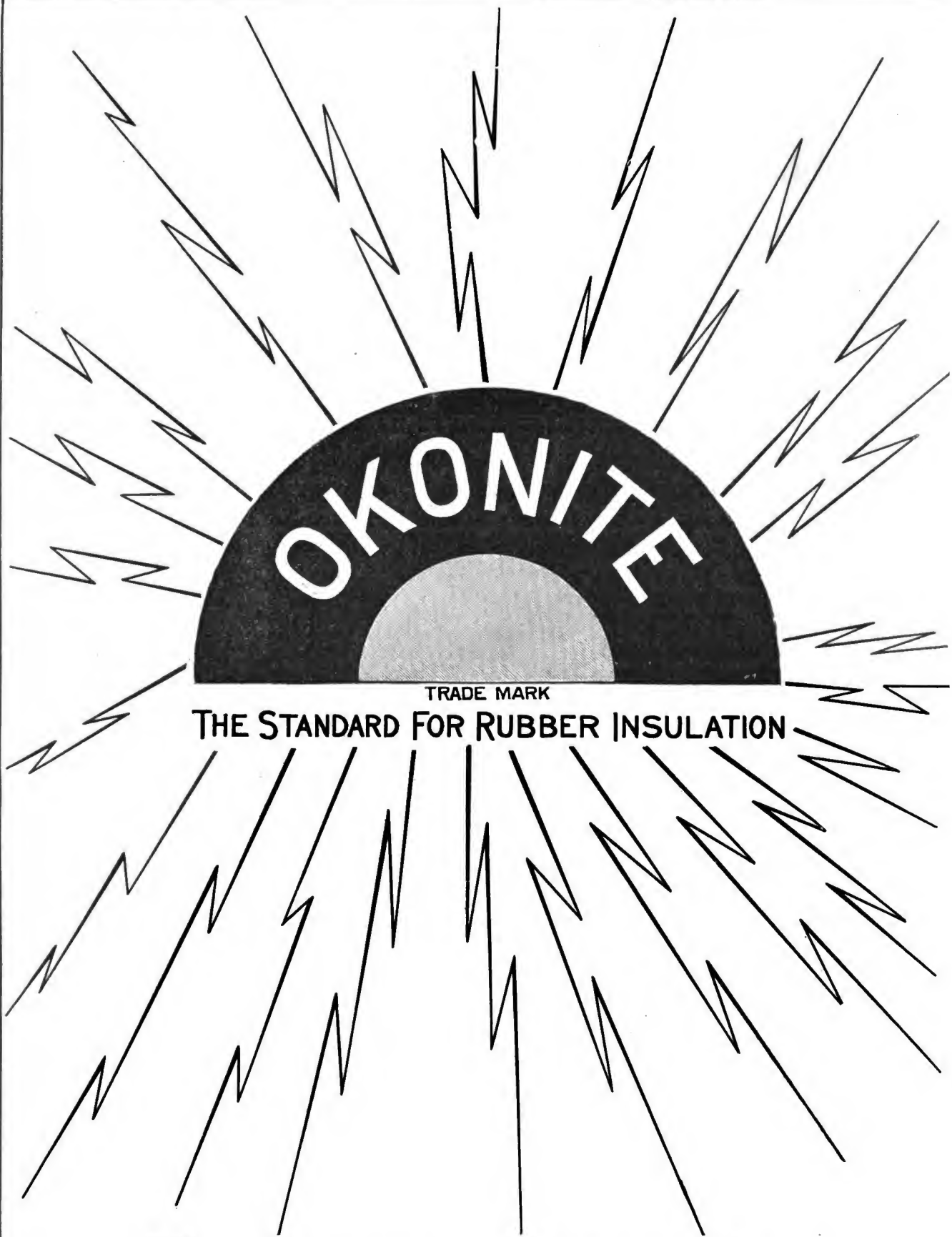
Assistant Manager F. F. Norton and family are spending a vacation in Massachusetts.

Chief W. E. Todd has returned from a two weeks' trip to the West and South.

E. A. Coney, night chief West and South, and Fred. Zeiss, Eastern night chief, as well as Chief J. J. Fredericks, Assistant Chief John Mearns and E. J. Liston, are also back from vacation outings.

R. A. McKune and John G. Pierce of the Philadelphia wires are also absent on vacation.

Mr. John Doren, superintendent of the department of complaints and claims, has returned from a well-earned vacation. Mr. M. J. Doren, of the same department, has also returned to his office after a vacation.



The Centre of Attraction

The Only Universal Code System

WESTERN UNION TELEGRAPHIC CODE

....A N D,...

INTERNATIONAL CABLE DIRECTORY OF THE WORLD

175,000 Official Vocabulary Words. Thousands of Technical Terms and Phrases applicable to the Trades and Manufactures

HIGHEST AWARD PAN-AMERICAN AND PARIS EXPOSITIONS

Adopted by the State Department of the United States, Washington, D. C., April 8th, 1902, for all the legations, embassies, and consulates throughout the World for the promotion of Export Trade

PRICE \$15 PER COPY

INTERNATIONAL CABLE DIRECTORY COMPANY

17 STATE STREET, NEW YORK CITY. SALISBURY HOUSE, LONDON WALL, E. C., LONDON, ENGLAND

ALARM AND SIGNAL TELEGRAPHS

—FOR—

FIRE AND POLICE DEPARTMENTS

—OF—

THE GAMEWELL FIRE ALARM TEL. CO.

—ARE—

STANDARD

IN USE IN OVER 1000 CITIES AND TOWNS

**Our STORAGE BATTERY
and CONTROLLING BOARDS**

are rapidly displacing uncleanly and expensive gravity batteries

EXECUTIVE OFFICES

19 BARCLAY STREET

Correspondence invited

NEW YORK CITY

CHICAGO, ILL., WESTERN UNION.

Mr. Edward Cranley, assistant on loops, and Miss Nellie Holland, of the Michigan division, were married on July 21.

Miss Maude Swartout, late of Maumee, Ohio, is now enrolled here.

A. B. Cowan, night assistant chief operator, has been away on a vacation. His place was filled during his absence by Henry Price.

Joseph Cummins and Charles White are now off on their vacations.

A. E. Bates has the sympathy of all in the death of his mother.

Fred. Latourneau is the happy father of a son.

H. H. Arthur, formerly of Chicago, has returned from Pittsburg to accept the position as chief of telegraph of the Santa Fé Road, whose offices are in the Great Northern Building.

E. J. Dolen has just returned after a short sojourn as manager of the Postal Telegraph-Cable Co. at Tiffin, Ohio.

R. W. Chapman, formerly chief bookkeeper, and now filling a similar position in New York, was recently married to Miss Emma Keppe, of Chicago.

Mr. and Mrs. Joseph Stickle are traveling in England for a few weeks.

We are happy to learn of the improvement in the condition of Miss Ida Palmer, and hope to see her with us soon again.

Arthur Galey is quite sick with typhoid fever.

W. H. Dolbear, manager at Des Moines, Iowa, and Charles W. Thayer, of Washington, D. C., an employee in Chicago in the seventies, who is on his way to California, were recent visitors.

CLEVELAND, O., WESTERN UNION.

C. W. Douglass, chief clerk in the superintendent's office, is enjoying a two-months' vacation in Europe. Mr. Douglass is one of the old-time telegraph men, having been employed in this vicinity for the past forty years.

We regret to learn of the resignation of J. H. Bleasdel, chief of the transfer department in this district. Mr. Bleasdel has accepted a more lucrative position outside of the telegraph business. He has been thirty-two years in the service, and has had charge of the money order business for the past twelve years.

Chief Operator Hackett, accompanied by Messrs. Schauf and Dagen, are at Cedar Point, assisting at handling the business of the Legislative Committee.

Traffic Chief E. C. Stockwell has the best wishes of the fraternity for a pleasant time during his two-weeks' vacation at Detroit and Buffalo.

MONTREAL, QUE., GT. NO. WESTERN.

The recent yacht races made things very brisk here, several operators going to Dorval and Nuns-Point, made us short-handed. Frank Cochrane was in charge at Dorval, and Messrs. Dungan and Baker at Nuns-Point.

Miss Clara Wheeler is substituting for Miss Beck during her vacation.

Manager W. B. Powell made a visit to his summer cottage at Old Orchard Beach, Maine.

Hugh H. Lyle has returned to work here again, after being stationed at North Bay, Ont.

Mrs. Louise Morrissey, a former telegrapher here, now a resident of St. Paul, Minn., accompanied by her sister, Miss Holt, paid a short visit to our office.

Miss Gertrude Egli, of this office, replaced Miss Camp at the cordage branch during the vacation of the latter.

Miss Beaudoin, of this office, is recuperating at L'epiphanie.

Superintendent E. Pope, of Quebec; Superintendent W. J. Camp, of the Canadian Pacific Railroad, Montreal, and Thomas Dewit were recent visitors.

Mr. A. E. Sink, manager of the operating department, Western Union, New York; Mr. Poustie, late superintendent of construction for the Montreal Telephone Company, and G. D. Perry, secretary and auditor of this company, were recent visitors to our office.

CINCINNATI, O., POSTAL.

Mr. Fenton T. Bott, assistant to Manager C. E. Sawtelle, has been appointed acting manager at Dayton, O., temporarily relieving Mr. W. C. Weinman, who will return about September 1st. Mr. Frank W. Sprong is filling Mr. Bott's place. Mr. L. N. Burnstein, a branch manager, and wife have returned from a vacation of a month.

Mr. Frank P. Duckett, manager of a branch office, has resigned to enter other business. Mr. H. W. Howe has been appointed to succeed Mr. Duckett.

Night Chief Samuel Sprong is taking a much needed rest and will be absent several weeks, his place being filled by James E. Nevill, who at one time was the permanent occupant of the position, and who resigned some time ago to go with a brokerage firm.

Edward F. Hasson, who has returned from a three-weeks' vacation visiting his parents at Townville, Pa., has been appointed a branch manager, vice Harry Beckmeyer, who has gone with the Western Union here.

Superintendent E. W. Collins and Miss Maud Duckett, of Cleveland, and F. W. Carroll, electrical engineer of Chicago, were recent visitors.

On vacations: Miss Neiderhauser, who has gone to the Lakes; Miss Hannah Rosenblum, to Louisville, and Delivery Chief W. W. Rowland, to Little Miami fishing grounds.

Miss May Brady is handling the Typo Convention at the Burnett House in Miss Rosenblum's absence.

Mr. C. L. Bennett and assistants, of Chicago, are installing a new terminal room and rewiring the board.

Edward Wilkenson, branch relief, has accepted a position with the Western Union in this city.

Operators will find a fund of practical information in every issue of TELEGRAPH AGE.

Low Resistance Relays.

EDITOR TELEGRAPH AGE:

From time to time so many inquiries have been made about the proper resistance of relays for Morse wires, that perhaps the following information may be useful:

The Postal Telegraph-Cable Company, for its Morse wires, has relays of 150 ohms and 75 ohms, and the use of the latter relays in wires worked by a large number of offices is considered very desirable. The adoption of the standard relays of the two resistances above named has nothing to do with their being the best adapted to develop the greatest magnetic pull from a given amount of current.

It is well known that the resistance of a properly constructed electro magnet should be about equal to the resistance of the rest of the circuit to secure a maximum magnetic effect from a given current, but in our telegraph service such a relay is not necessary nor practicable.

It would cause a great deal of confusion to attempt to regulate the resistance of relays to all the various circuits in which they are worked for securing the best results in each case, consequently relays with the uniform resistance of 150 ohms each have been adopted for the entire system, and the currents for the operation of the circuits have to be regulated to properly operate such relays.

It is found, however, on circuits having a great many relays, such as is generally the case upon railroad wires, that the introduction of many electro magnets of 150 ohms resistance each so increases the time constant of the whole circuit as to render its operation sluggish, due to the inductance of the electro magnets as you no doubt have frequently observed.

To overcome this, it has been the practice of certain railroad electricians to place the coils of the relay in multiple, thus reducing the resistance in each relay from 150 ohms to 37 1-2 ohms, and, consequently, if the battery has been retained the same size, the strength of the current will be increased according to the total reduction of resistance of the circuit corresponding with the reduction of resistance in the relays.

At the time this was done, however, the ampere turns, or magnetizing effect of an equal current, was decreased to one-half in each relay, so that notwithstanding the strength of the current had been increased upon the wire, the reduction of ampere turns upon each relay did not permit of an increased magnetic effect, but on the contrary, in most cases, resulted in a large decrease.

The great benefit that was gained, however, and which was appreciated by the telegraph men, was the fact that they could work the relays much faster than previously; in other words, that their sluggish action had largely disappeared, and if the battery had been increased sufficiently to have restored the magnetic effect of the relays to what it was originally, before they were placed in multiple, it would be found that the signals would

travel over the circuit much more rapidly than before.

It has been my opinion that it is going to extremes to cut the resistance of the relay from 150 ohms down to 37 1-2 ohms by the multiple process; that it is too great a sacrifice of the effective working value of the relay, and that much better results can be obtained by reducing the relay only to 75 ohms, but at the same time to so reconstruct the relays with the very purest soft iron slotted cores, and giving them the very best proportions as to size and inertia of armature, tongue, etc., with fine clock-bearing shafts, that such relays at 75 ohms have really a much lower time constant than the large number of old-fashioned, poorly made, and badly designed multiple connected relays, which are in use upon many railroad circuits in this country.

With relays of high resistance, the result is that when a key is opened and closed at one end of the wire, it is quite an appreciable time before the relays have become fully demagnetized and magnetized, respectively.

It should be understood that the reduction of resistance in a relay from 150 ohms to 75 ohms, does not contemplate merely unwinding that much wire from a 150-ohm relay, but that the bobbins must be filled as full as possible with a wire of larger gauge than that used upon the 150-ohm relay, to measure 75 ohms from binding post to binding post. The best silk-covered, pure copper magnet wire, of course, being understood.

I think that the line leakage only affects the problem to the extent that leakage may reduce the electro-static capacity of the line wire, and also to cause a decrease in the strength of the signaling current, which decrease of current is going to more greatly interfere with the signals upon the circuit in which the current falls below the strength necessary to properly operate the relays. The line leakage undoubtedly will cripple first the relays having the fewest ampere turns of wire, but the circuit having low resistance relays should contain more current in proportion than the one with 150-ohm relays. Yours very truly,

FRANCIS W. JONES.

New York, August 22.

T. M. B. ASSOCIATION.—Assessments Nos. 397 and 398 have been levied by the Telegraphers' Mutual Benefit Association, to meet the claims arising from the deaths of Edgar C. Stowe, Benton Harbor, Mich.; S. B. Taylor, Springfield, Ill.; Jas. St. J. Greenough, Sterling, Ill.; E. F. Walker, Somerville, Tenn.; Thomas Graney, New Haven, Conn.; Walter J. Wallace, Williams-ton, S. C.; Charles W. Woodbridge, Santa Barbara, Cal.; James Dunnigan, Brooklyn, N. Y.; Henry Dow, North East, Pa., and Walter Miller, Valatie, N. Y.

TELEGRAPH AGE is the only telegraphic paper published in America. It is up to date, covering its field thoroughly, and no telegrapher, official or operator, can afford to be without it.



What the I. C. S. Did for Me

Two months after I took up the I. C. S. training, I received an increase in salary. Aside from this, the satisfaction I am getting from my Course is worth a hundredfold what it cost me. I firmly believe that any one who can read will be benefited by I. C. S. training, as my early education was limited to common schools, and still I have mastered studies that I have never seen before.

H. A. GAGNON,
Station Agent, Reed's Ferry, N. H.

What the I. C. S. Will Do for You

For over ten years we have been training people for better positions and salaries in every line of industry. We can do the same for you. We can train you for any position in the electrical field. Mark **X** in the coupon before the position for which you wish to be trained, fill in the blanks and send to us. By return mail we will explain our plan.

DO IT TODAY

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box 883, SCRANTON, PA.

Please explain how I can qualify for the position marked **X** below.

☐ Telegraph Engineer
☐ Telephone Engineer
☐ Electrical Engineer
☐ Designer of Electric Machinery
☐ Erector of Electric Apparatus
☐ Manager of Electric Railway
☐ Manager of Electric Light Plant
☐ Superintendent of Electric Plant
☐ Fire Underwriter's Inspector
☐ Interior Wireman
☐ Foreman of Dynamo Room
☐ Foreman of Electrical Repair Shop
☐ Dynamo Tender
☐ Electrical Lineman
☐ Motorman

Occupation _____

Name _____

No. _____ St. _____

Town _____ State _____

FOR RAILROAD SIGNALS

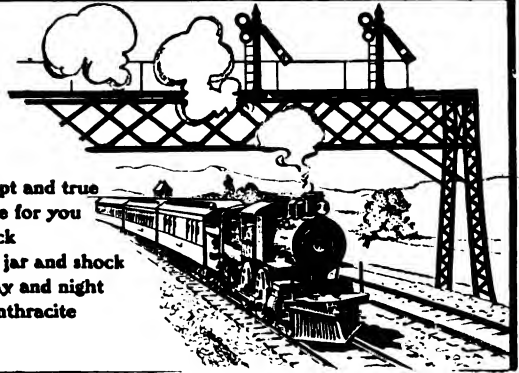
— USE —

EDISON PRIMARY BATTERIES

Lackawanna
Railroad

THIS IS THE ROAD OF ANTHRACITE.

These are the signals prompt and true
That make the journey safe for you
Over the bed of ballast rock
That keeps the trains from jar and shock
That smoothly run both day and night
On the dustless Road of Anthracite



ALL SIGNALS OPERATED EXCLUSIVELY BY
EDISON PRIMARY BATTERIES
FORMERLY KNOWN AS EDISON-LALANDE
FULL DESCRIPTION IN BOOKLET NO 23
EDISON MANUFACTURING COMPANY

Factory, ORANGE, NEW JERSEY, U. S. A. New York Office, 83 CHAMBERS STREET
Chicago Office, 144 WABASH AVENUE



HUDSON'S WORD REGISTER

A simple, accurate device for counting the words written upon the typewriter. It is easily read, instantly set, and covers both message and special work. Price by mail, with full directions for attaching and operating, \$3.00. State what machine you use. Circular free. Address

GEO. E. HUDSON,
Sheridanville, Pa.

I Can Sell Your Farm

no matter where it is. Send description, state price and learn how. Est. '96. Highest references. Offices in 14 cities.
W. M. Ostrander, 1751 N. A. Bldg., Philadelphia

Lockwood's Electricity, Magnetism and Electric Telegraphy. A practical guide for operators. 376 pages, 152 illustrations. Price, \$2.50, expressage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

TELEPHONES.

FOR
SHORT LINES
LONG LINES
PRIVATE LINES
EXCHANGE LINES
ETC., ETC., ETC.



ALL INSTRUMENTS ARE EQUIPPED with celebrated "Standard" Transmitters, which have no equal for talking and lasting qualities and are considered by experts and telephone users to be the best transmitters upon the market

Write for Prices. Goods shipped Promptly,

Address:

STANDARD No. 8
Long Distance Telephone

**STANDARD TELEPHONE
AND ELECTRIC COMPANY
MADISON, WIS.**

The Mackay Will.

Mrs. John W. Mackay and her son, Clarence H. Mackay, recently filed the will of John W. Mackay at Virginia City, Nev. The will bears date of July 14, 1898, and was made in New York. Declaration is made in the first paragraph of the will that all the estates of the testator are the common property of his wife and himself. The will bequeathes all of his estates subject at the time of his death to Mr. Mackay's testamentary disposition to his son, Clarence Hungerford Mackay. The wife and son are named as executors without bond, and are given power to sell or dispose of the estate in any way they see fit. The value of the estate is estimated at between \$50,000,000 and \$75,000,000. The witnesses to the will are Messrs. A. B. Chandler, E. C. Bradley and W. H. Baker.

The Tennessee District Telegraph Company has been organized at Memphis, with a capital of \$100,000. The incorporators are E. Howard, J. Compton, W. T. Gentry, James Merrihew and George H. Fearons.

The Postal Telegraph-Cable Company will, on September 1, institute its own messenger service in Brooklyn, N. Y. Thomas F. Rochford, the Postal's manager, in a letter to the American District Telegraph Company, notified that company that the Postal company would deliver its telegrams by its own messengers after the above date.

[Advertising will be accepted to appear in this column at the rate of three cents a word.]

Time and labor saved by using Reservoir Pens—non-blotting, latest patent. You can write 500 words with one dip in ink well. 25 cents a dozen. Write to-day, Russel Pen Co., 6608 Ellis Ave., Chicago, Ill.

Gold and Stock Life Insurance Association.

At the special meeting of the Gold and Stock Life Insurance Association, New York, June 23rd, adjourned to July 21st, the amendments to the by-laws, including graded rates, as follows, for new members,

- Between 18 and 30, 50 cents per month,
- Between 30 and 35, 60 cents per month,
- Between 35 and 40, 75 cents per month,
- Between 40 and 45, \$1 per month,

and as recommended at the last annual meeting, were adopted to take effect January 1st, 1903.

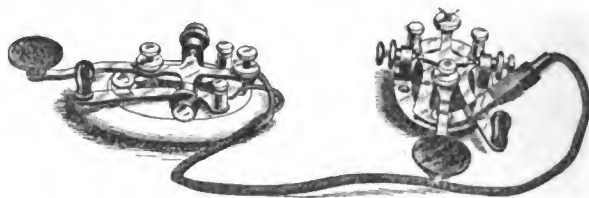
IMPORTANT TO YOU

J. S. TOWNSEND--The Telegraphers' Jeweler, 1554 Wabash Ave., Chicago, offers any article in his elegant stock at net wholesale prices. A rare opportunity. Any watches or jewelry advertised can be bought at a lower price from this well known firm. J. S. TOWNSEND, 1554 Wabash Ave., Chicago. Our 400-page catalogue sent on application. Agents wanted. Established 1877.

TRANSMITTING A PLEASURE. Rogers' Portable Key Base.

A Telegrapher's Necessity.

Handsome, speediest and best key ever made; use on any wire; any position; instantly connected or detached; eliminates fatigue; lost grip relieved.



"It's all you claim."—J. S. Strachan, night chief operator New York Associated Press.

Price \$3.25; Full Nickel \$3.75.

A. B. Rogers' mfr. 144 West 109 St. New York.

THE TELEGRAPHERS' FRIEND.

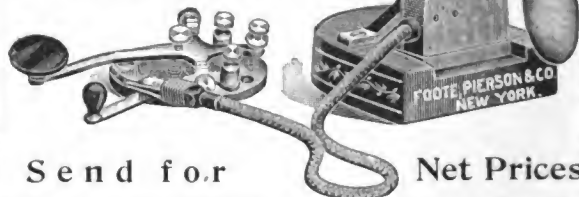
The 20th Century Telegraph Key
POSITIVELY CURES

and prevents Loss of Grip.

Makes fast sending Easy.

Send for Booklet and Net Prices

E. S. RUSSELL, General Agent
253 BROADWAY, NEW YORK.



Send for

Net Prices

TAKE TIME BY THE FORELOCK.

Dont' wait until sickness overtakes you before trying to get you life insured.

Telegraphers' Mutual Benefit Association.

Insurance \$500, \$1,000 or \$1,500.

Assessment rates graded according to age and adjusted to income no matter how small.

Further particulars from agents or

M. J. O'LEARY, Sec'y, P O. Box 510, New York

Typewriters for Telegraphers. The Philadelphia Type-writer Exchange, of Philadelphia, is the oldest, largest and best equipped house in Pennsylvania for supplying all makes of reliable typewriters. Machines rented or sold on easy payments. Special terms to members of the O. R. T. and O. C. T.

D. A. MAHONEY, Special Representative,

Operating Dept. Main Office Western Union Telegraph Company, PHILADELPHIA, PA.

Shower of Rock.

Colonel T. P. Cook, general superintendent of the Western Union Telegraph Company, Chicago, Ill., and Colonel J. J. Dickey, superintendent of the same interests at Omaha, Neb., who are touring Colorado in the interest of their company, met with an experience near the summit of Pike's Peak lately that has no doubt given a few shades whiter tint to those gentlemen's locks.

Thirty years ago the Government established a signal office on the crest of the noted peak, and for several years kept a corps of observers stationed in the stone house that is held in place by large iron bolts firmly secured to the huge granite blocks composing the top of the peak. This house has withstood the wintry winds that frequently reach a velocity of one hundred miles, but the Government was not so fortunate with the telegraph line to the summit. Each spring a new line would have to be constructed, the material being transported up the lofty peak on burros. This proved too expensive for Uncle Sam, and ten years ago Pike's Peak station was abandoned, and nothing more was done towards bringing Pike's Peak into communication with the outside world until the cog road was built a few years later, then it was found quite necessary to have telegraphic communication with the summit in order to move trains safely.

A deal was made with the Western Union to construct and maintain the same, which was accomplished by using iron brackets instead of pine poles. These brackets were securely fastened into the granite walls, and for a time seemed to be the right thing in the right place, but they, too, began to go down and out after severe storms.

Hearing that the two well-known telegraphers were in the state, Major Clinton W. Sells, general manager of the Cog road, invited the gentlemen to ascend the peak with him and see if they could devise some means to combat with the elements. The party went to the summit on the afternoon train, then walked back a mile or two to watch what effect an electric storm, then in progress, had upon the wires. Colonel Dickey's keen eyes quickly detected the trouble, which was caused chiefly by the strong electric current that impregnated the air to such an extent that it melted both the lines and iron brackets. It was then decided a cable must be laid the last 3,000 feet, and held down to the ground by granite blocks, in order to insure no further trouble.

The distinguished party were congratulating themselves upon having solved the knotty problem, and were preparing to return to the summit to take their special car, when boulders from the size of a man's hand to those weighing hundreds of pounds began to roll down the precipice in such close proximity to them that their lives depended upon dodging them. Colonel Cook and Major Sells, being small of stature, managed to escape the fusilade by laying low and exposing but little of their anatomies, but with Colonel Dickey, he being a six-footer and well developed,

all depended upon his quick eye and ability to dodge. This the colonel acquired when a young man playing football. After the shower of rock, dirt and moss ceased, and the party could straighten up and look around, they beheld half a dozen beautiful specimens of the wild Rocky mountain sheep, who in their mad flight to escape the gaze of man were tearing loose the boulders above them, and all felt greatly relieved when they realized that it was not a repetition of the battle of Santiago, and will return home thinking there are lots worse places than Colorado, even if not so wild.—Old Farmer Lawton, in the Rocky Mountain News.

Old Menlo Park.

The New York Times has the following about the decay of Menlo Park, New Jersey, where Edison did so much of his famous early work: "Edison made Menlo Park famous all over the world, and in the old days there were many visitors to the little place. Even to-day many persons suppose the main laboratory of Edison is still at Menlo Park, and scarcely a day passes that the postmaster does not receive some letter addressed to Edison. Those were boom days for Menlo Park. Besides the Edison plant two other factories were built, and it looked as if the place had a bright future. Then Edison removed his plant, and the prosperity of the village came to a sudden stop. Little by little Menlo Park sank back to the condition of a country village. The railroad steadily decreased the number of trains stopping there. To-day an air of almost melancholy quiet broods over the place. Although the plant has fallen into decay Edison still owns it. His family have large interests in Menlo Park. A short distance east of the former laboratory stands the old Edison homestead, which is the property of Mr. Edison's daughter. In its time it was an imposing structure. Tenants were hard to find, the buildings fell into decay, and finally an Italian family were allowed to live in it rent free."

New Postal Office at Memphis.

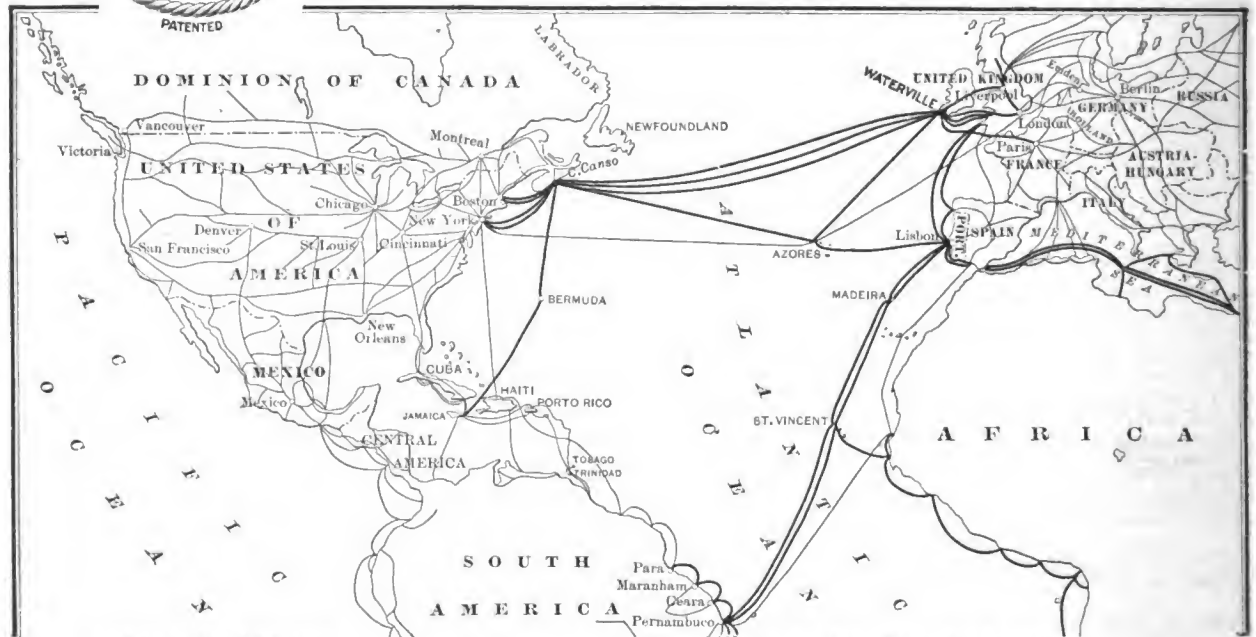
The Postal Telegraph-Cable Company at Memphis, Tenn., has removed to its new offices on Madison street, that city, opposite the old quarters which had been occupied for several years. W. H. Locke is the manager. The new home of the Postal is a model one, and presents a very attractive appearance. The receiving department, offices, delivery department and operating section are on the street floor. In the basement are the storage rooms, etc. The front portion of the street floor is reserved for a lobby, and is separated from the office by a handsome natural oak counter. Back of this is the bookkeeping department and Manager Locke's office. The operating tables are arranged in regular order behind these desks. They will accommodate more than 100 operators at a single time. The dynamos, twelve in number, are arranged along the side of the operating section

Commercial Cable Co.



CONNECTIONS :

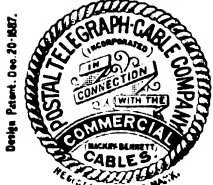
POSTAL TELEGRAPH-CABLE COMPANY,
CANADIAN PACIFIC RAILWAY TELEGRAPHS,
HALIFAX & BERMUDAS CABLE COMPANY,
DIRECT WEST INDIA CABLE COMPANY,
DEUTSCH-ATLANTISCHE TELEGRAPHEN-GESELLSCHAFT
(GERMAN ATLANTIC CABLE COMPANY).



EXECUTIVE OFFICES,
POSTAL TELEGRAPH BUILDING, N. Y.

JOHN W. MACKAY, PRESIDENT.
GEO. C. WARD, VICE-PRES. & GEN'L MANAGER.

THE REASONS WHY THE POSTAL TELEGRAPH-CABLE COMPANY



IS THE

ONLY SUCCESSFUL COMPETITIVE TELEGRAPH SYSTEM EVER MAINTAINED :

Its proprietors and management determined from the first to establish a permanent business based on sound principles and business-like methods, and have steadfastly adhered to that policy.

Its employees are intelligent, diligent, energetic and enthusiastic. They are in sympathy with their employers and are working for the company's interests, recognizing that their interests are identical with the company's interests and that unless the Postal service is the BEST, public patronage cannot be retained.

Every man in the "Postal's" service is proud of the company's success.

These are the reasons why the "Postal" Company has been successful in the past and will be successful in the future.

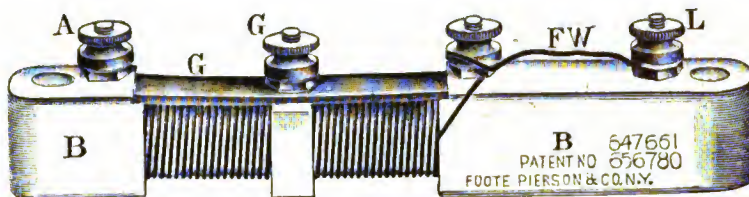
The progress of the Postal Telegraph System is evidenced by the continued extension of land lines, the numerous and important railroad connections recently made, the valuable connections with the German cables, the Pacific cable (now being constructed), the Direct West Indies cable, the Bermuda cable, etc.

FIRE AND POLICE TELEGRAPH SYSTEMS

SHOULD ALL BE EQUIPPED WITH

Argus Lightning Arresters.

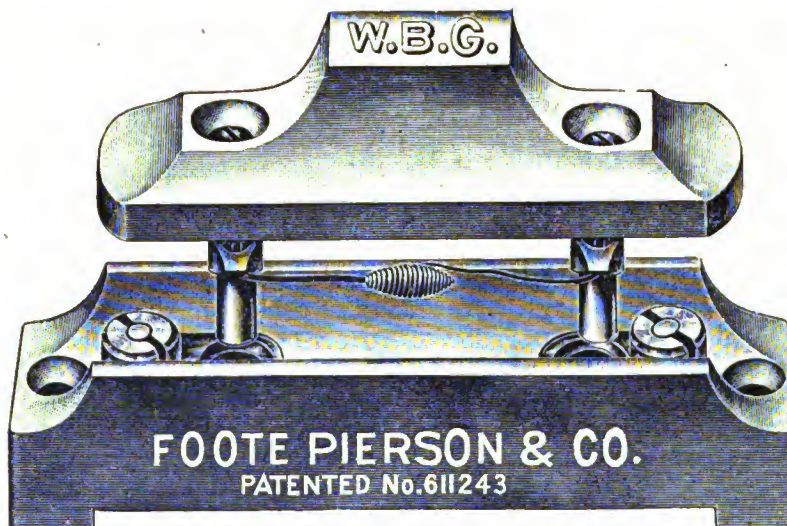
No experiment. Over 50,000 in service. The most reliable and efficient arrester known.



It interrupts lightning of any degree without opening or disabling the circuit. A very important feature in municipal telegraph systems.

The W. B. G. Fuse Protector is especially effective in protecting delicate instruments against artificial currents of every quality. It is an absolute protection against the sneak current—the most destructive and difficult current to guard against as it is never constant and is not detected by the ordinary straight fuse.

AND W. B. G. Fuse Protectors.



The W. B. G. Fuse is made for three-tenths of an ampere up. For small fractions of current it is the accurate fuse ever made. It is a time fuse and is made to open at an increase of one-tenth of an ampere which assures absolute safety to the most delicate electrical instruments.

TO INSURE ABSOLUTE PROTECTION AGAINST BURNOUTS
BY LIGHTNING OR CROSSES WITH HIGH TENSION CIRCUITS.

Foote, Pierson & Co.

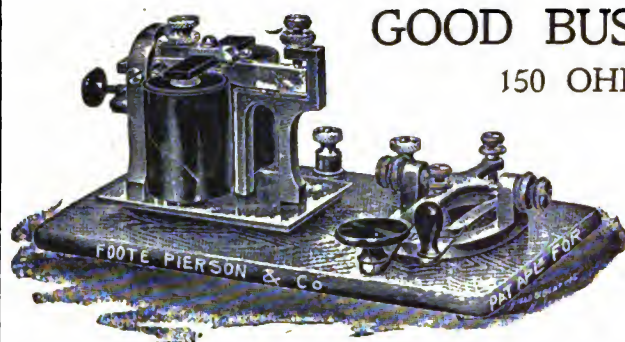
82-84 FULTON ST., NEW YORK CITY.

MAKERS OF . . .

High Grade Electrical Goods.

WRITE FOR OUR NEW
CATALOGUE No. 12

Measuring and Testing Instruments, Condensers,
Testing Sets for Aerial or Underground Cables. A
Complete Line of Fine Telegraph Instruments.
F. P. & Co.'s Celebrated in Writing Registers.



GOOD BUSINESS IF YOU USE OUR 150 OHM MAIN LINE TELEGRAPH SETS

It can be quickly adjusted to meet any line conditions in any kind of weather. If you want to use it outside for Line Testing, etc. order a leather carrying case with shoulder strap.

FOOTE, PIERSON & CO.
NEW YORK
Telegraph Instruments our Specialty

Gold and Stock Life Insurance Association

TWENTY-FIFTH YEAR

For Telegraphers and Others in Electrical Service.

INITIATION FEE, \$1.00; DUES, 50 Cents per Month; INSURANCE, \$500.00, in payments of \$50.00 per Month for Ten Consecutive Months.

WM. J. DEALY, Secretary, 195 BROADWAY, NEW YORK.

Received Only Medals Awarded World's Fair, Chicago, 1893.

COVERING INSULATED WIRES AND CABLES

FOR

Aerial, Underground, - - -
Submarine and Interior Use.

KERITE TAPE.

atalogues, Samples and Prices on Application.



TRADE MARK.

FOR

Telephone, Telegraph, Power and Lighting.

W. R. BRIKEY,
MANUFACTURER.

203 BROADWAY, NEW YORK.

CALIFORNIA ELECTRIC WORKS,
San Francisco, Cal.

Headquarters

Established 1869

**Rogers Manifold and Carbon
Paper Co.,**
MANUFACTURING STATIONERS,
No. 75 MAIDEN LANE, NEW YORK.

MANUFACTURERS OF SUPERIOR
CARBON PAPER

-----FOR-----

Stylus, Pencil, Pen and Typewriter Use.

All kinds, colors and sizes on thin, medium and heavy paper for all purposes. Large Stock. Large discount. Orders filled promptly.

ALSO MANUFACTURERS OF
TYPEWRITER RIBBONS
FOR ALL MACHINES

Superior quality, woven edge, Gold Tips. Send for price lists. Also for Manifold Papers and Books, Stylus, Duplicating Books, Oil Boards, Train Order Books, etc.

*Please mention the Tel-
graph Age in communi-
cating with advertisers.*

THE WESTON STANDARD VOLTMETERS AND AMMETERS.



The Weston Standard Mil-Ammeters and Ammeters are infinitely superior to galvanometers for tests of current strength on lines and for tests of Relays, Sounders and other Telegraphic Apparatus. They are direct-reading, dead-beat, and are practically uninfluenced by the earth's field. No constants are required, and with careful use there is no necessity for recalibration. The Weston Standard Voltmeters are the very best practical instruments obtainable for determining the electro-motive force of single cells, or series of cells, or for ascertaining the voltage on lines. By the proper use of these instruments all tests of resistance, current, strength and electro-motive force required in telegraphic practice can be made with great ease and accuracy. Correspondence solicited.

WESTON ELECTRICAL INSTRUMENT COMPANY,

WAVERLY PARK, NEWARK, N. J.

BERLIN: European Weston Electrical Instrument Co., Ritterstrasse No. 88.
LONDON: Elliott Bros., No. 101 St. Martin's Lane.

*Any electrical or telegraph book
published for sale by Telegraph
Age, 253 Broadway, New York.*

Pope's Modern Practice of the Electric Telegraph. A handbook for operators. 223 pages, fully illustrated. Price, \$1.50, postage prepaid. Address J. B. Taltavall, TELEGRAPH AGE, 253 Broadway, New York.

TELEGRAPH AGE.

A SEMI-MONTHLY JOURNAL DEVOTED TO TELEGRAPHY.

Single Copies, 10 cts.

ESTABLISHED 1883.

\$1.50 per year.

Vol. XIX.—No. 18.

NEW YORK, SEPTEMBER 16, 1902.

Whole No. 464.



NEW STANDARD DRY CELLS. STANDARD OF THE U. S. NAVY AND THE WORLD.

The price is as low as any; durability, FOUR to ONE over any other make. When you use them once you will want no other. NECKTIE PIN outfit by mail \$1.00.

WILLIAM ROCHE, Inventor and
Sole Manfr.,
42 Vesey St., New York.

Put Alexander's Word-Counter

on your machine to-day. You will be a better operator to-morrow. It will save you lots of work and worry, and silently demand a better salary for the improved service you will give.

JESSE ALEXANDER, 195 Broadway, New York

1889

PARIS EXPOSITION MEDAL FOR
RUBBER INSULATION.



TRADE MARK.

THE STANDARD FOR RUBBER INSULATION.

1893

WORLD'S FAIR MEDAL FOR
RUBBER INSULATION

SOLE
MANUFACTURERS OF

Okonite Wires, Okonite Tape, Manson Tape, Candee Weatherproof Wires

THE OKONITE CO., LTD., 253 BROADWAY, NEW YORK.

WILLARD L. CANDEE,
H. DURANT CHEEVER, } Managers.

WRITE FOR PRICES.

GEO. T. MANSON, Gen'l Supt.
W. H. HODGINS, Secy.

**Good Work
Durability
Simplicity
Speed**

ARE THE

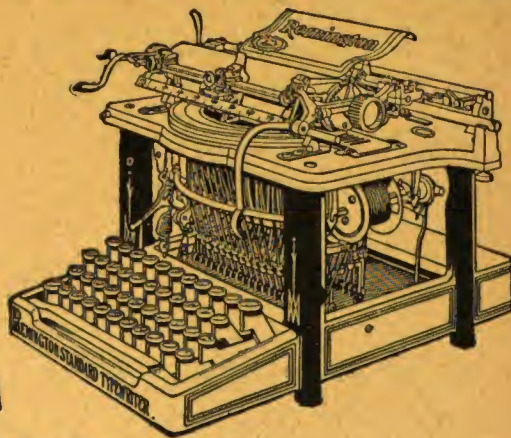
Four Pillars of Strength

which Support the

**Remington
Typewriter**

YOU WILL FIND THEM IN EVERY REMINGTON

Wyckoff, Seamans & Benedict, 327 Broadway, New York.



IN CORRESPONDING WITH ADVERTISERS PLEASE MENTION THIS PUBLICATION.

This book should be returned to
the Library on or before the last date
stamped below.

A fine of five cents a day is incurred
by retaining it beyond the specified
time.

Please return promptly.



